APPENDIX B

Geologic, Borehole Geophysical, Field Water Quality

and Well Construction Logs

For New Phases I and II 1984-1987 Monitor Wells

APPENDIX B

FIELD INVESTIGATIONS

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FIELD INVESTIGATIONS

INTRODUCTION

The field portion of this study consisted of:

1. Drilling, geological logging, sampling and construction of 47 monitoring wells.
2. Drilling, geological logging and geophysical logging of two deep test borings.
3. Geophysical logging of two previously installed Kennecott wells.
4. Measurement of water levels.
5. Collection and field measurement of pH and specific conductance during drilling and following well completion.
6. Contracting the surveying of the location and elevation of all completed wells and eight previously installed Kennecott wells.
7. Permanent abandonment of 5 wells.

The field investigations were initiated on August 12, 1985 and will continue through June 1987. These investigations were conducted and/or supervised by an experienced Dames & Moore hydrogeologist. The location of all monitoring wells installed during this study for which ground water quality samples were obtained and other wells and surface water sample sites monitored by Kennecott are shown in the main text on Figure 2.

INSTALLATION OF MONITORING WELLS

GENERAL

Presently, 47 monitoring wells have been installed at 32 different sites during the field program. The details of the methods used to install these wells are presented in Section 4.0 of the specifications prepared by Dames & Moore entitled "Installation of Ground Water Monitoring Wells For Utah Copper Division, Kennecott Corporation June 1985." Locations and elevations of the

new monitoring wells are given in Table B-1 and the locations are shown in Figure 2 of the main text. Plate B-1 shows the construction features for a typical monitoring well. At eight sites, two wells were installed and designated with the site number and an A or B suffix for shallow and deep completions, respectively. Three sites contain groups of three wells designated with the site number and an A, B and C suffix for shallow, intermediate and deep completions, respectively. Twenty-one sites contain single well construction, and four sites have yet to be drilled. The drill cuttings from the deepest of the borings at each monitoring well site were obtained on a five-foot interval and the boring was geologically logged on the basis of these drill cuttings.

Geophysical logging at selected locations was performed by Century Geophysical Corporation of Moab, Utah, and Strata Data of Casper, Wyoming. Three borings, P249B, P256 and a 1,000-foot test boring at site P241 were logged by Century. Test boring P277 was geophysically logged to 1150 feet by Strata Data. Boring P247B was geophysically logged through steel casing by Utah International of Salt Lake City, Utah. Also, existing Kennecott wells numbered P208B and P197B were logged by Century Geophysical. Copies of the geophysical logs are provided in the Addendum. Data concerning hole depth, completion date, screened interval, sand pack interval, and the lithology of the screened unit are summarized on Table B-2, Well Completion Summary, and on the boring logs Plates B-2A to B-2I. Further details of the logs and construction of each of the monitoring wells are given in the Addendum, Geologic Logs, Geophysical Logs and Well Abandoments.

DRILLING

Forty-five borings for monitor well installation were drilled using cable tool methods by Basin and Range Drilling of Spanish Fork, Utah, using two Bucyrus Erie 22-W and one Speedstar drilling rigs. Two wells were installed in borings drilled using the air-rotary method, employing a Chicago Pneumatic 5000 rotary rig, operated by Dave's Drilling out of Heber, Utah. One 1,000-

foot deep test boring was drilled by Zimmerman Well Service, Moab, Utah near boring P241C using a Speedstar SS15-II mud rotary drilling rig for the purpose of geophysical and geological investigation. An additional test boring P277 near Bingham Creek was later drilled to 1200 feet by Lang Expoloratory Drilling of Salt Lake City, Utah employing the use of a Schramm TM-90 top drive mud rotary drilling rig, and was also geologically and geophysically logged.

Three boring diameters were used with the cable-tool method, utilizing 6, 8, and 10 inch tool bits. Six, 8 and 10 inch 0.280, 0.322 and 0.365 inch thick steel drive casing was generally, but not always advanced below depth drilled, and then drilled out and bailed. Stable downhole conditions occasionally allowed open-hole drilling before steel casing was driven to desired depth. Air-rotary borings utilized seven and seven-eighths inch tri-cone bits, and 8 inch 0.025 inch wall steel casing was generally advanced ahead of drilling using an air-driven casing hammer.

Clean water was the only fluid introduced into the well borings during monitor well drilling, and was obtained from a clean water source at Kennecott's lime slaking unit near Copperton, Utah.

WELL CONSTRUCTION

Boring site locations, as well as shallow, intermediate and deep boring designations for each site were chosen by Kennecott in conjunction with the technical and advisory groups. Final screen depths for borings were determined by Dames & Moore in conjunction with Kennecott based upon a review of boring and water quality data. Criteria for determining screen depths include:

1. Evaluation of boring's vertical water quality during drilling. Differences in vertical water quality were evaluated with changes in geologic units and noted, particularly with respect to confining units.

2. Designated type of boring. At each site, one, two or three borings were designated to monitor particular aquifer zones. At single boring sites, borings generally were drilled 30 or 40 feet below the water table, whereas several of these sites were used to evaluate deeper water quality and then grouted back to be screened at a higher zone. At multiple well installation sites, screen depths for deeper wells were set where a significant change in water quality from the shallow boring was noted.

3. Type of materials in boring. Screen placement was chosen after a review of geologic samples to screen within an interval of highest permeability, once other criteria listed above had been met.

Wells installed to depths of less than 200 feet were constructed using 4-inch Schedule 40 PVC casing and slotted screen. Wells installed to depths greater than 200 feet but less than 600 feet were constructed of 4-inch Schedule 80 PVC casing and screen. Screened lengths for each of these conditions were 20 feet, with the exception of wells P244A and P244B which have 10-foot sections of screen. One well, P247B, installed below 600 feet was constructed using 6-inch Schedule 80 PVC casing with a 40-foot section of screen. The PVC screens used were factory slotted to a width of 0.018 inches. Casing and screen assemblies were joined by flush threaded couplings. Centralizers were banded on both the screen and adjoining 20 feet of casing at 10-foot intervals. When schedule 80 PVC casing was used, a thin Vitron rubber gasket was fitted between couplings as per manufacturer's recommendation to prevent seepage. Six-inch length flush couple threaded end caps were placed at the end of each screen assembly.

Several borings required grouting back to limit sand pack thickness once screened interval had been selected. Grout or coarse bentonite was tremied into place to seal off lower water-bearing zones.

Each well was sand packed using 16-40 graded Colorado Silica Sand. Sand pack was tremied into place and generally extended five to seven feet above the top of the screen to the bottom of each boring. The depth to the top of the sand pack was probed to determine its exact depth. One well, P247B, was

naturally gravel packed. A five-foot bentonite seal consisting of bentonite pellets was placed above the sand pack and probed to determine exact depth. The remaining annular space was then grouted to the surface using a neat cement grout mixture with four percent bentonite slurry. All grout and bentonite was placed using tremie pipe methods. During the time that sand, bentonite or grout materials were being tremied into place, the protective steel drive casing was hydraulically jacked from the boring. Casing shoe depth was calculated constantly in relationship to probed depth of materials being added, so that the potential for the borehole walls to cave against either screen or well casing during completion was minimized.

In boring P252C, P254A, and P254B, hydraulic jacking force was not sufficient to remove all of the steel drive casing. In borings P247A and P247B, steel casings were perforated prior to well construction. Information concerning steel casing abandonment is summarized on well construction data in the Addendum, and graphically shown on the boring logs, Plates B-2A through B-2I. A protective 10-inch galvanized steel casing with locking lid was painted, numbered, installed and cemented to a depth of two feet around each well to protect the well. A location marker post was cemented into place several feet from the well.

GEOLOGIC LOGS

Detailed geologic logs were prepared for each well site. These logs are presented in Geologic Logs and Well Construction Data in the Addendum, and are summarized in graphic form on Plates B-2A through B-2I. The geologic logs are based on drill cuttings and drilling characteristics of the units. In describing the geologic units, standard geologic terminology has been used. The use of this terminology requires interpretation as to the origin and mineralogy of the rock units, or physical characteristics of unconsolidated to consolidated sediment types being described. Discussions of this terminology and these interpretations are contained in a following section entitled Geologic Data Interpretation.

WATER QUALITY SAMPLING

Vertical ground water samples at each site were obtained from the deep boring during drilling. Water samples were taken at a set interval of 5, 10, or 20 feet for each site to characterize water quality vertically, and to aid selection of screened intervals. Representative vertical water samples were obtained over discrete intervals defined by the interval between the casing shoe and bottom of open hole. Open-interval sampling ranged from no open interval to several tens of feet, often depending on geological conditions. A minimum set volume of water equal to three times the open boring interval plus 20 feet was evacuated from the boring prior to sampling when possible, then water levels were allowed to recover sufficiently and a sample was obtained with a bailer. Water samples were contained in a cooler at the drill rig and were collected and field measured on the same day when possible. Table B-3 contains field water quality measurements, open intervals during sampling, borehole depth during sampling and date samples were obtained.

A final water sample was collected and field measurements were made following completion and development of each well. A minimum of 20 casing volumes were removed prior to collection of sample. All samples collected during the drilling phase sampling program and final samples following development were taken to Kennecott's environmental laboratory for sulfate and total dissolved solids analyses. Table B-4, Water Quality Summary - Completed Wells, contains final field water quality measurements, depth to water and date on which levels were measured.

WATER LEVEL MEASUREMENTS

Water levels were measured in each boring on a daily basis, prior to commencement of drilling. These measurements were recorded on the drillers logs, which were kept current on a daily basis for each boring during drilling. A copy of these logs have been retained in Dames & Moore's files.

Water levels were taken at each well following well development and recovery, and measured from the top of PVC casing. These water levels are summarized on Table B-4.

WELL LOCATION AND ELEVATION SURVEYS

The location and elevation of each of the new monitoring wells were surveyed upon completion. Additionally, a permanent survey monument was placed at each site and surveyed. Surveys were performed by P.S. Associates of Salt Lake City, Utah, and Great Basin Engineering of Bountiful, Utah, under contract to Dames & Moore. Both horizontal and vertical surveys were reported accurate to the limits of second order surveys as defined by the Board of Surveys and Maps of the Federal Government, May 9, 1933. A summary of the well survey data is presented on Table B-1, Well Location and Elevation Summary. A summary of permanent monument survey data is presented in Table B-5.

PERMANENT WELL ABANDONMENT

During the period of monitor well installation, Kennecott requested that five older, previously installed monitoring wells be permanently abandoned. Abandonment work was completed by Basin and Range Drilling of Spanish Fork, Utah. All wells were abandoned according to the Administrative Rules for Water Well Drillers, Division of Water Rights, State of Utah. A Permanent Well Abandonment Summary is shown on Table B-6, and a brief narration of each abandonment follows Appendix B in the Addendum.

GEOLOGIC DATA INTERPRETATION

INTRODUCTION

Subsurface geologic conditions were evaluated through the examination of drill cuttings and supported by correlation with driller and geophysical logs. Information was obtained through the drilling of borings performed as part of this investigation, geophysical logging and review of well logs and other unpublished data provided by the Kennecott Corporation. This section briefly describes the basis of our data interpretation as used to estimate subsurface lithologic characteristics, construct geologic cross sections, and to evaluate subsurface geologic data.

GEOLOGIC LOGGING

Detailed geologic logs prepared for each well site are presented in Geologic Logs and Well Construction Data in the Addendum. The geologic logs are based on drill cuttings and drilling characteristics of the units. The purpose of this section is to acquaint the reader with the methods used to collect and describe the geologic materials encountered in the borings.

The quality of the geologic logs were dependent on a number of factors, including:

1. Size of drill cuttings
2. Penetration rates
3. Depth of boring when drilling open hole

Drill cuttings ranged in grain size from a maximum of four inches in diameter to clay size, depending on the method of drilling and on the degree of hardness or cementation, as well as the types of materials being drilled.

When cable tool drilling methods were used, drill cuttings were obtained with a bailer, which evacuated materials drilled over a five foot interval. Such methods allowed a relatively accurate composited sample representative of materials within each five foot zone. Advancement of drive steel casing additionally ensured that slough or caving would not mix with the sampled interval.

In the case where air-rotary or mud-rotary drilling methods are employed, drill cuttings are carried to the surface in the drilling fluid, where they are mixed and sorted based on their size and shape and the velocity and viscosity of the drilling fluid. In general, mixing and sorting of the drill cuttings increases as a function of depth. Therefore, as the boring is advanced without casing, the level of detail and reliability of the geologic descriptions obtained using the drill cuttings is significantly reduced. However, the reliability of the interpretations was augmented due to the presence of a qualified Dames & Moore hydrogeologist to monitor drilling activities, to observe drilling characteristics, to insure the proper collection of the drill cutting samples and to prepare field logs.

The final geologic log was prepared based upon a review of field logs, and reinspection of cutting samples in the Dames & Moore laboratory. In general, we believe these logs to be reliable and generally accurate; however the following considerations should be noted:

1. Grain size parameters are estimates based on drilling characteristics and interpretation of the drill cutting shapes and sizes.

2. Degree of consolidation or cementation of sedimentary units is based on penetration rates, borehole stability, difficulty in driving casing, interpretations of drill cutting shapes and sizes and the presence of calcium carbonate cementing agents.

3. Descriptions of drill cuttings are based on material collected over a five-foot interval and, hence, are descriptions of composited material. Units less than five feet thick could not be differentiated solely on the basis of drill cuttings.

4. In describing the drill cuttings, the decision was made to provide as detailed descriptions as possible; realizing that in doing this, portions of the descriptions may not be representative of the entire unit described.

5. Geological units less than five feet in thickness are defined primarily on identifications made using penetration rates, driller's logs and substantiated by observations in the drill cuttings.

IDENTIFICATION OF GEOLOGIC UNITS

GENERAL

The purpose of this section is to present the basis of the gologic interpretations utilized in our analysis of the Kennecott monitor well study area. Interpretations are based on the general geological log interpretations discussed previously, results of our field investigations, geophysical logs, previous subsurface data and the geologic literature.

There are several geologic units present at the site where ground water has or could potentially be impacted. The principal geologic units are grouped as Quaternary Alluvium, Tertiary deposits, and Tertiary Volcanics.

QUATERNARY ALLUVIUM

The alluvial deposits of Quaternary age encountered in the borings generally consisted of poorly sorted boulders, cobbles, silty gravels and sands, silts and clays deposited within and adjacent to Lake Bonneville and preceeding Quaternary lakes. These unconsolidated sediments vary in thickness throughout the study area, and represent alluvial, colluvial, fan, lacustrine and cut-and-fill stream channeling unconformably deposited over Tertiary fill of moderate relief. Gravels and sands are composed principally of quartzite rock fragments derived from Paleozoic formations and a lesser percentage of andesitic gravels derived from nearby volcanics of Tertiary age. Quaternary gravels tended to be less angular generally than clastic materials from alluvium deposited in the Tertiary.

TERTIARY DEPOSITS

Tertiary sediments identified within the study area are members of the Tertiary Salt Lake group. The Salt Lake group is a general name applied to unconsolidated to consolidated Tertiary sediments filling intermontane valleys to the west of the Wasatch Mountains which tend to be localized and horizontally discontinuous. Members of the Salt Lake group have been identified at Jordan Narrows, to the south and east of the study area, and correlation between these units and sediments identified within the borings suggest that the sediments belong primarily to the uppermost member of the group, the Harker's Fanglomerate. It should be noted however that later work by Tooker and Roberts (1971) has indicated that the Harker's unit may be assigned Quaternary in age. Clays identified in boring P247B and P254B are not grouped with this member. These clays have been correlated with clayey units in nearby borings W11 and W16 in the South Jordan -Riverton area which have been assigned to the Tertiary Jordan Narrow Unit (Marine and Price, 1964). For a more detailed discussion on members of the Salt Lake group, the reader is referred to the work of L.W. Slentz (1955).

Tertiary deposits outcrop in the Oquirrh foothills generally above the 5,200 foot level where they disappear beneath younger Quaternary sediments to the east and truncated on the western edge in the foothills by Tertiary volcanic sequences. These sediments were deposited in the form of thick wedge-like coalescing alluvial fans along the margins of the Salt Lake Basin.

Tertiary deposits vary a great deal within the study area, and consist of boulders, angular to subangular gravels composed of 80 to 90 percent tan to orange-brown or gray quartzite with 10 to 20 percent volcanic detritus. Gravels chiefly of volcanic detrital composition were intersected in borings at sites P266, P267, P268, P269 and P274 and are also believed to be of Tertiary age. The unit also includes sands of similar compositions of silts and clays. Volcanic ash was identified from cuttings in clay layers in both borings P247B and in test boring P241C. Tertiary sediments were generally,

but not always, semiconsolidated to consolidated which was interpreted by the borehole stability during drilling. Occasional cemented zones presented difficulty while casing the borings which were drilled into Tertiary sediments, and was a general indicator that the contact between the two units had been intersected. Because of uncertainty in distinguishing the base of the Quaternary from the Tertiary contact, no attempt was made to delineate this in the logs, however Table B-7 estimates at what elevation a semiconsolidated to consolidated surface may have been intersected.

TERTIARY VOLCANICS

General

The units identified as Tertiary Volcanics in this study have been categorized by genetic origin into two groups. The first group includes Tertiary agglomerates and tuffs which are primarily of pyroclastic origin. The second group, Tertiary Volcanic flows, includes andesite porphyry, hornblende andesite porphyry, a latite porphyry and rhyolite. One or more of these rock types were identified in 12 monitor well borings, all located within the Oquirrh Mountain foothills. Volcanic classification of these units was made on a visual basis, petrologic identification of cuttings, and a review of published literature of rock types in the study area.

Agglomerates and Tuffs

Volcanic agglomerates and tuffs in the study area differ from other types of volcanics both genetically and compositionally. Agglomerates were formed as a result of pyroclastic ash flows in an incandescent state with local occurrences of mud-flow and ash-fall deposits. The agglomerate contains inclusions of volcanic rock types ranging in size from pebbles to boulders. These inclusions which range in composition from andesite and andesite porphyry, hornblende andesite porphyry and rhyolite are set in a non-welded tuffaceous matrix which constitutes 10 percent to 90 percent of the rock. Vol-

canic inclusions delineate the general bedding plane stratification of the unit.

Non-welded tuffs which are interbedded in the agglomerate generally showed higher penetration rates during drilling and a noticeable absence of volcanic inclusions in the cuttings. Drill cuttings also tended to be finer in size.

Compositionally, the agglomerate matrix material and the interbedded non-welded tuffs are similar. Constituents of the agglomerate matrix and bedded tuffs are approximately 30 percent glass, 40 to 50 percent andesine, quartz from 0 to 7 percent, hornblende from 10 to 30 percent, and accessory minerals including augite and magnetite less than 5 percent (Smith, 1961).

Tertiary Volcanic Flows

In several of the borings, volcanic flows were identified, including andesite porphyry, hornblende andesite porphyry, hornblende biotite latite porphyry and rhyolite. A distinction between the rock types was made on the basis of visual composition using the following criteria:

1. Composition of the phenocrysts. Volcanic rocks containing phenocrysts of plagioclase feldspars with little to no quartz or potassium feldspars were identified as andesites. Rocks containing phenocrysts of potassium feldspars and presence of quartz were identified as being rhyolite. Rocks containing intermediate feldspar compositions and small amounts of quartz were classified as latites.

2. Rock color. Volcanic rocks that were pink or pinkish red were identified as rhyolite, providing that a rhyolitic composition was substantiated, at least in part by the composition of phenocrysts. Rocks of light gray to light brownish gray were identified as latite when substantiated by composition.

Andesite porphyry flows were generally light to dark gray or purplish-gray in color, contained approximately 20 percent phenocrysts of plagioclase in an unidentifiable glassy groundmass. Hornblende andesite porphyry had a greenish hue, and included numerous aligned hornblende needles.

GEOPHYSICAL LOGGING

GENERAL

Geophysical logging of one test boring and four completed wells was performed by Century Geophysical Corporation of Moab, Utah. One boring was logged through the drive steel casing by Utah International of Salt Lake City, Utah. Test boring P277 was logged by Strata Data of Casper, Wyoming.

Test boring P241C was drilled to 1,000 feet using the mud-rotary method and open-hole logged. Completed wells P256 and P249B were logged through PVC screen and casing. Additionally, previously installed Kennecott wells P197B and P208B were also logged through PVC screen and casing. Well P247B was logged through drive steel casing to obtain geologic information and to check casing continuity. Copies of the geophysical logs are provided in the Addendum, Geologic and Geophysical Logs. Discussions of geophysical log interpretations pertaining to this study are presented in the following sections. The discussions of the geophysical log interpretations are based in part on the works of Keys and MacCarey (1971). The reader is referred to these works for more detailed discussions of geophysical logging and interpretation.

GAMMA RAY LOGS

The gamma ray log represents the quantity of natural gamma radiation emitted from geologic materials adjacent to the borehole plotted as a function of depth. Gamma radiation is produced by the radioisotope potassium-40, an isotope of potassium. Gamma is also produced by the daughter products of the uranium- and thorium-decay series. In the geologic units encountered at the site, gamma ray intensity is primarily associated with the natural gamma ray radiation emitted from potassium-40, as potassium is the major radioactive element occurring in these units. Elevated concentrations of potassium are present in potassium feldspars, muscovite, biotite and clay minerals, and these minerals are more prevalent in finer grained sediments. Gamma tools

detect higher counts in finer-grained units and the logs show the differences between the coarser materials such as cobbles and gravel and the finer materials which includes silts and clays. Gamma ray logging was useful in logging through steel and PVC casing, although gamma counts were somewhat suppressed.

APPARENT DENSITY LOGS

The apparent density (gamma-gamma) logs provide a measure of the in-situ density of geologic materials. A radioactive source located in the logging tool emits gamma radiation. A sensor in the tool records gamma ray intensity after the radiation has been backscattered and attenuated by the materials adjacent to the borehole. The intensity of returned radiation is approximately proportional to the density of surrounding geologic materials. Density is a function of particle specific gravity as well as porosity. Where the exact specific gravity of a solid is known, the gamma-gamma log may be used to estimate porosity. Specific gravity of sediments encountered at the site varied from approximately 2.3 to 2.5 grams per cubic centimeter. In test boring P241C, average density showed slight increases corresponding to higher degrees of consolidation within probable Tertiary sediments as a function of increasing depth.

NEUTRON LOGS

Neutron logs provide a measure of moisture content and/or porosity of the rock materials being logged. Neutron logs are used primarily for the measurement of moisture content above the water table, and the total porosity below the water table. Neutrons are emitted from a radioactive source within the tool. A sensor within the tool counts the neutrons that return after absorption and scattering in materials surrounding the borehole. Hydrogen is the most efficient element in moderating neutrons because the nucleus of the hydrogen atom has approximately the same mass as the neutron.

CALIPER

The caliper tool is a protruding arm on the logging tool which measures irregularities on the sides of the borehole as the tool comes up the hole. The caliper aids in showing formational differences by showing changes in the stability of boring walls as s function of depth.

ELECTRIC LOGS

Electrical logs were run only on test borings P241C and P277, which included spontaneous potential and resistivity logs. Completed wells were not electrically logged because of the insulating properties of PVC. Electric logs were not made at boring P247B because of the conducting properties of steel casing.

SPONTANEOUS POTENTIAL LOGS

Spontaneous potential logs are records of the natural potential (voltage) developed across the junction from formational waters to the geologic materials to the mud, and the potential developed between the mud filtrate and the formational waters. This natural voltage is the electromotive force (EMF), and the intensity of the EMF is proportional to the degree of dissimilarity between the two fluids and the rate of mixing. As the rate of mixing between the drilling fluid and the formational fluid is controlled by the geologic materials and formation permeability, the intensity of the EMF is a function of both the formation permeability and formation water quality. Spontaneous potential curves for test boring P241C were useful below the water table in delineating zones of finer sediments (silts and clays) from adjacent gravels with higher permeabilities carrying formation waters.

RESISTIVITY LOGS

The resistivity logs used in the investigation of test borings P241C and P277 were 64-inch normal, 16-inch normal, guard and single point resistivity logs. Resistivity logs measure the electrical resistivity of the borehole materials as a function of depth.

The resistivity of borehole materials is a function of the rock resistivity and the resistivity of waters within the formation materials. The short normal gives good vertical detail and record apparent resistivity of the invaded zone, where the long normal records apparent resistivity beyond the zone of mud invasion. Because the resistivity of the formation water is related to water quality, resistivity logs can be used to interpret changes in formational water qualities when there are no significant changes in formational resistivities. For both borings, resistivity logs were used to differentiate interbedded geologic units and show zones of differing water quality. In general, the resistivity response in both borings increases with increasing depth for materials of similar geologic composition, which may indicate improvement of water quality with depth.

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TABLE B-1

WELL LOCATION AND ELEVATION SUMMARY

Well Number	Township and Range Coordinates	Kennecott Coordinates North	Kennecott Coordinates East	Elevation Ground Surface	Elevation Marker Point
P241A	NW¼NW¼NW¼ Sec. 23, T.3 S., R.2 W.	12475.3	32336.4	5043.80	5046.35
P241C	NW¼NW¼SW¼ Sec. 23, T.3 S., R.2 W.	9803.7	32426.9	5010.20	5013.09
P242	NE¼NE¼NE¼ Sec. 17, T.3 S., R.2 W.	17715.9	21318.0	5352.06	5354.58
P243	NW¼NW¼NE¼ Sec. 29, T.3 S., R.2 W.	6606.8	19471.2	5411.57	5414.18
P244A	SE¼SE¼SE¼ Sec. 30, T.3 S., R.2 W.	2266.3	16139.4	5680.74	5683.33
P244B	SE¼SE¼SE¼ Sec. 30, T.3 S., R.2 W.	2278.1	16123.5	5682.36	5685.00
P244C	SE¼SE¼SE¼ Sec. 30, T.3 S., R.2 W.	2285.3	16110.0	5683.48	5685.94
P245	SE¼SE¼NE¼ Sec. 19, T.3 S., R.2 W.	10370.3	16090.6	5544.19	5546.62
P246	SW¼NE¼SW¼ Sec. 17, T.3 S., R.2 W.	14267.3	18113.8	5500.12	5502.79
P247A	NW¼NW¼NE¼ Sec. 20, T.3 S., R.1 W.	12298.4	51521.4	4634.00	4636.58
P247B	NW¼NW¼NE¼ Sec. 20, T.3 S., R.1 W.	12263.7	51281.5	4621.62	*
P248A	SW¼SE¼NW¼ Sec. 17, T.3 S., R.2 W.	15485.1	17874.8	5334.80	5337.80
P248B	SW¼SE¼NW¼ Sec. 17, T.3 S., R.2 W.	15490.8	17849.4	5336.60	5339.19
P248C	SW¼SE¼NW¼ Sec. 17, T.3 S., R.2 W.	15496.0	17827.6	5338.40	5341.08
P249A	NW¼NW¼SW¼ Sec. 10, T.3 S., R.2 W.	20424.1	27238.3	5152.40	5154.67
P249B	NW¼NW¼SW¼ Sec. 10, T.3 S., R.2 W.	20394.5	27233.2	5153.70	5155.94
P250A	NW¼SE¼NW¼ Sec. 11, T.3 S., R.2 W.	20459.04	33676.89		
P250B	NW¼SE¼NW¼ Sec. 11, T.3 S., R.2 W.	20460.89	33691.83		
P251	SW¼NE¼NW¼ Sec. 34, T.2 S., R.1 W.	32810.0	59890.0	4393.60	4395.03
P252A	SE¼SE¼SE¼ Sec. 5, T.3 S., R.1 W.	23165.8	53460.4	4553.60	4556.36
P252B	SE¼SE¼SE¼ Sec. 5, T.3 S., R.1 W.	*	*	*	*
P252C	SE¼SE¼SE¼ Sec. 5, T.3 S., R.1 W.	23126.4	53462.4	4554.50	4557.12
P253A	SW¼NW¼SW¼ Sec. 15, T.3 S., R.1 W.	14290.7	59035.1	4475.00	4477.48
P253B	SW¼NW¼SW¼ Sec. 15, T.3 S., R.1 W.	14267.9	59027.2	4474.90	4477.60
P254A	NE¼NE¼NE¼ Sec. 19, T.3 S., R.1 W.	12410.7	48199.5	4758.00	4760.60
P254B	NE¼NE¼NE¼ Sec. 19, T.3 S., R.1 W.	12412.5	48222.3	4756.90	4759.68
P255A	NE¼NW¼SE¼ Sec. 30, T.3 S., R.1 W.	4530.9	46464.2	4683.70	4685.80
P255B	NE¼NW¼SE¼ Sec. 30, T.3 S., R.1 W.	4530.6	46486.4	4683.00	4685.31
P256	SW¼SW¼SW¼ Sec. 20, T.3 S., R.1 W.	7218.0	48342.8	4640.30	4641.98
P257	NW¼NW¼NE¼ Sec. 30, T.3 S., R.1 W.	6653.8	46176.6	4686.50	4688.80
P258A	NW¼NW¼SW¼ Sec. 11, T.3 S., R.1 W.	19848.67	64206.84	4393.9	4396.86
P258B	NW¼NW¼SW¼ Sec. 11, T.3 S., R.1 W.	19828.41	64206.69	4394.3	4396.73
P261	NE¼NE¼NE¼ Sec. 18, T.3 S., R.1 W.	17739.40	48244.30	4689.4	4691.80
P262	NW¼NW¼SE¼ Sec. 20, T.3 S., R.1 W.	9796.03	50971.88	4603.9	4633.38
P263	SE¼SE¼SE¼ Sec. 19, T.3 S., R.1 W.	7652.91	46741.28	4682.3	4684.77
P266	NW¼SW¼NE¼ Sec. 26, T.3 S., R.2 W.	5097.98	35275.70	4913.5	4915.80
P267A	SW¼SE¼NW¼ Sec. 35, T.3 S., R.2 W.	-220.97	34110.15	4965.2	4967.86
P267B	SW¼SE¼NW¼ Sec. 35, T.3 S., R.2 W.	-215.15	34120.65	4965.1	4967.75
P268	NW¼NW¼NW¼ Sec. 27, T.3 S., R.2 W.	7088.79	27077.90	5122.6	5124.97
P269	SW¼SW¼NE¼ Sec. 28, T.3 S., R.2 W.	4693.66	24442.78	5186.4	5188.63
P271	SE¼SE¼SW¼ Sec. 29, T.3 S., R.2 W.	2244.37	18957.25	5480.6	5483.08
P272	NW¼NW¼SW¼ Sec. 29, T.3 S., R.2 W.	3963.45	16570.68	5603.6	5606.14
P274	NW¼NW¼NW¼ Sec. 21, T.3 S., R.2 W.	12392.19	22174.55	5335.7	5338.17
P275	SW¼NW¼NW¼ Sec. 9, T.3 S., R.2 W.	21893.70	21826.52	5345.4	5347.13

TABLE B-2

WELL COMPLETION SUMMARY

Well Designation	Completion Date	Hole Depth (ft)	Screened From (ft)	Screened To (ft)	Sand Pack Interval From (ft)	Sand Pack Interval To (ft)	Lithology Of Screened Interval
P241A	05-17-86	330.5	310.0	330.0	303.5	330.5	Sand, gravel
P241C	07-14-86	440.0	385.0	405.0	378.0	410.0	Gravel, sand, silt
P242	09-14-85	196.0	170.0	190.0	162.0	196.0	Gravel, sand
P243	09-17-85	87.0	65.0	85.0	60.0	87.0	Volcanics
P244A	09-23-85	57.0	45.0	55.0	39.0	57.0	Gravel, volcanics
P244B	09-20-85	82.0	70.0	80.0	64.0	82.0	Volcanics
P244C	09-26-85	134.0	113.5	133.5	106.0	134.0	Volcanics
P245	09-16-85	140.5	120.0	140.0	113.0	140.5	Volcanics
P246	10-14-85	260.0	205.0	225.0	196.0	230.5	Sand, volcanics
P247A	02-22-86	230.0	209.0	229.0	202.0	230.0	Sand, gravel
P247B	05-13-86	905.0	615.0	665.0	532.0	665.0	Gravel, silt, clay
P248A	03-17-86	100.0	80.0	100.0	73.4	100.0	Gravel, sand
P248B	01-02-86	140.5	120.0	140.0	113.0	140.5	Volcanics
P248C	12-21-85	200.5	175.0	195.0	168.5	198.0	Volcanics
P249A	02-16-86	328.8	308.0	328.0	301.0	328.8	Silt, sand, gravel
P249B	04-18-86	400.0	370.0	390.0	363.0	400.0	Gravel, sand
P250A	05-04-87	320.0	300.0	320.0	293.0	320.0	Gravel
P250B	03-12-87	431.0	411.0	431.0	373.0	400.0	Clay, sand
P251	04-04-86	145.0	120.0	140.0	116.2	145.0	Gravel, silt
P252A	08-07-86	155.5	135.0	155.0	129.3	155.5	Gravel, sand
P252B	09-12-86	255.5	235.0	255.0	226.1	255.5	Gravel, sand
P252C	07-31-86	400.0	360.0	380.0	353.0	385.0	Sand
P253A	06-06-86	135.0	115.0	135.0	108.0	135.0	Sand, gravel, silt
P253B	05-28-86	390.0	365.0	385.0	345.4	390.0	Gravel, silt, sand
P254A	04-01-86	217.0	197.0	217.0	185.5	217.0	Sand, gravel, clay
P254B	01-29-86	387.0	335.0	355.0	323.2	365.0	Clay, gravel, sand
P255A	06-24-86	60.0	40.0	60.0	34.9	60.0	Sand, gravel, silt
P255B	06-24-86	160.0	125.0	145.0	118.0	160.0	Gravel, silt, sand

TABLE B-2 (Continued-2)

Well Designation	Completion Date	Hole Depth (ft)	Screened From (ft)	Screened To (ft)	Sand Pack Interval From (ft)	Sand Pack Interval To (ft)	Screened Interval
P256	04-08-86	287.0	240.0	260.0	227.0	287.0	Gravel, sand
P257	07-31-86	115.0	70.0	90.0	65.0	95.0	Gravel, silt, sand
P258A	12-17-86	90.5	67.0	87.0	63.0	90.5	Gravel, sand
P258B	12-09-86	235.0	214.5	234.5	209.0	235.0	Sand, gravel, clay
P261	10-21-85	120.0	100.0	120.0	95.0	120.0	Silt, sand
P262	01-03-87	197.0	176.5	196.5	170.5	197.0	Gravel, sand, silt
P263	02-02-87	325.0	230.0	250.0	225.0	260.0	Gravel, sand
P265	03-19-87	142.0	122.0	142.0	117.0	142.0	Sand, gravel
P266	11-19-86	235.0	215.0	235.0	209.0	235.0	Gravel
P267A	02-28-87	165.0	145.0	165.0	140.0	165.0	Gravel, sand
P267B	02-11-87	340.0	320.0	340.0	313.0	340.0	Gravel, silt
P268	11-03-86	240.0	220.0	240.0	213.0	240.0	Gravel, silt
P269	10-23-86	155.0	135.0	155.0	129.9	155.0	Gravel, sand
P270	04-06-87	199.0	179.0	199.0	169.0	199.0	Volcanics
P271	10-14-86	85.0	65.0	85.0	85.5	85.0	Volcanics
P272	10-10-86	105.0	85.0	105.0	79.7	105.0	Volcanics
P273	07-17-87	340.0	320.0	340.0	313.0	340.0	Sand, gravel
P274	10-06-86	305.0	285.0	305.0	278.1	305.0	Gravel, silt
P275	09-18-86	170.0	149.5	169.5	144.5	170.0	Gravel, silt
P276	05-19-87	315.0	295.0	315.0	288.0	315.0	Sand, gravel
P277	05-28-87	400.0	380.0	400.0	373.0	400.0	Sand, gravel

TABLE B-3

WATER QUALITY OF
SAMPLES COLLECTED FROM BORING
PRIOR TO WELL COMPLETION
DRILLING PHASE WATER SAMPLE SUMMARY

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements	
					pH	Conductivity (umhos/cm)
P241A	05/07/86	285	275-285	24	7.51	3,350
P241A	05/09/86	305	304-305	76	7.46	3,600
P241A	05/12/86	330	329-330	141	6.87	3,750
P241C	06/13/86	250	248-250	34	7.86	1,750
P241C	06/20/86	270	269-270	86	7.73	1,750
P241C	06/20/86	295	290-295	152	11.89	3,000
P241C	06/24/86	315	310-315	204	7.73	2,050
P241C	06/24/86	330	327-330	243	7.69	2,000
P241C	06/25/86	350	345-350	295	7.93	2,100
P241C	06/26/86	370	364-370	347	10.18	1,900
P241C	06/27/86	390	386-390	399	10.07	1,600
P241C	06/28/86	410	405-410	452	7.71	1,000
P241C	07/01/86	430	424-430	504	8.16	1,050
P242	08/21/85	185	175-185	149	3.9	7,300
P243	08/27/85	80	75-80	174	7.19	780
P243	08/27/85	87	85-87	68	7.65	760
P244B	08/29/85	65	48-65	84	4.44	12,750
P244B	08/30/85	75	65-75	272	6.99	3,800
P244C	09/06/85	55	45-55	37	4.00	14,000
P244C	09/09/85	87	66-87	611	4.78	14,000
P244C	09/10/85	110	97-110	324	6.91	3,200
P245	09/11/85	120	0-120	149	5.81	2,000
P246	10/08/85	260	240-260	345	7.23	1,100
P247A	10/08/85	190	178-190	8	7.58	3,700
P247A	10/08/85	202	201-202	40	7.19	3,500
P247B	10/22/85	170	164-170	120	6.57	1,780
P247B	10/22/85	180	176-180	146	7.18	2,180
P247B	10/23/85	190	186-190	172	7.20	2,150
P247B	10/23/85	200	198-200	198	7.14	2,350
P247B	10/24/85	210	206-210	130	7.01	3,000

TABLE B-3 (Continued-2)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements	
					pH	Conductivity (umhos/cm)
P247B	10/25/85	220	218-220	120	7.11	3,000
P247B	10/25/85	230	224-230	146	6.84	3,400
P247B	10/25/85	240	231-240	172	7.00	3,550
P247B	10/28/85	250	247-250	198	6.97	3,550
P247B	10/30/85	261	260-261	227	7.45	3,100
P247B	10/30/85	272	271-272	255	7.24	2,900
P247B	10/30/85	280	272-280	277	7.17	3,000
P247B	10/30/85	295	284-295	316	7.37	3,000
P247B	10/30/85	301	295-301	332	7.23	2,950
P247B	10/31/85	310	295-312	355	7.27	2,650
P247B	11/04/85	322	315-322	381	7.42	2,500
P247B	11/04/85	332	315-332	407	7.34	2,250
P247B	11/06/85	337	336-337	420	7.02	2,800
P247B	11/08/85	350	349-350	460	7.09	2,900
P247B	11/08/85	360	-	486	7.04	2,550
P247B	11/11/85	370	-	512	7.07	3,000
P247B	11/11/85	381	379-381	538	6.64	3,400
P247B	11/11/85	390	389-390	564	6.85	3,400
P247B	11/14/85	411	410-411	616	6.85	3,300
P247B	11/18/85	431	430-431	668	7.23	3,200
P247B	11/21/85	453	452-453	721	7.20	2,400
P247B	11/22/85	472	471-472	773	7.18	2,650
P247B	11/28/85	490	-	825	6.95	2,300
P247B	12/02/85	506	505-506	867	7.59	1,650
P247B	12/04/85	525	521-525	2,750	7.12	1,800
P247B	12/31/85	600	-	3,337	7.44	1,850
P248C	12/03/85	65	52-65	13	3.87	7,300
P248C	12/05/85	80	77-80	52	4.83	-
P248C	12/09/85	100	98-100	105	4.76	4,600
P248C	12/10/85	120	103-120	157	5.14	5,700
P248C	12/10/85	140	103-140	209	5.27	6,900
P248C	12/11/85	160	103-160	261	4.63	3,750
P248C	12/11/85	180	103-180	313	4.17	4,500
P248C	12/11/85	200	103-200	366	4.15	3,600
P249B	03/13/86	325	320-325	180	7.49	2,250
P249B	03/14/86	340	332-340	219	7.84	1,550
P249B	03/18/86	360	355-360	272	7.61	1,300
P249B	03/20/86	380	373-380	323	7.56	1,550
P249B	03/20/86	400	396-400	376	7.75	1,250
P250B	02/05/87	290	no open	156	8.83	1,550
P250B	02/06/87	315	no open	156	8.37	1,400
P250B	02/09/87	335	no open	156	8.58	1,400
P250B	02/10/87	355	no open	156	8.09	1,400

TABLE B-3 (Continued-3)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements pH	Conductivity (umhos/cm)
P250B	02/11/87	375	no open	156	8.21	1,250
P250B	02/11/87	385	no open	156	8.21	1,200
P250B	02/13/87	399	no open	156	8.21	1,200
P251	03/24/86	40	38-40	50	7.14	2,400
P251	03/24/86	55	53-55	89	7.16	2,200
P251	03/24/86	65	63-65	115	7.10	2,000
P251	03/24/86	75	73-75	141	7.05	1,720
P251	03/27/86	85	83-85	167	7.36	2,200
P251	03/27/86	95	93-95	193	7.31	1,950
P251	03/27/86	105	103-105	219	7.21	1,700
P251	03/27/86	115	113-115	245	7.36	1,900
P251	03/28/86	125	124-125	272	7.25	1,900
P251	03/28/86	135	134-135	298	7.27	2,000
P251	03/28/86	145	143-145	324	7.42	1,900
P252C	06/27/86	105	no open	18	7.66	1,150
P252C	07/01/86	135	no open	36	7.80	1,150
P252C	07/02/86	155	no open	68	7.83	1,200
P252C	07/03/86	175	no open	120	7.33	1,400
P252C	07/07/86	195	no open	172	7.48	1,400
P252C	07/08/86	215	no open	225	7.25	2,150
P252C	07/09/86	235	no open	277	7.15	2,600
P252C	07/09/86	255	no open	329	6.88	2,600
P252C	07/11/86	265	no open	355	6.96	2,500
P252C	07/14/86	275	no open	381	7.11	2,200
P252C	07/15/86	295	no open	433	7.35	1,850
P252C	07/15/86	315	no open	486	7.52	1,600
P252C	07/17/86	335	no open	537	7.38	1,650
P252C	07/18/86	355	no open	590	7.63	1,550
P252C	07/21/86	375	no open	642	7.68	1,250
P252C	07/22/86	395	no open	695	7.79	1,250
P253B	05/01/86	120	-	180	8.56	1,500
P253B	05/01/86	145	140-145	245	8.15	1,650
P253B	05/05/86	165	159-165	298	7.57	1,800
P253B	05/05/86	187	185-187	350	7.56	2,150
P253B	05/08/86	225	215-225	454	7.60	1,750
P253B	05/09/86	255	236-255	533	7.70	1,400
P253B	05/10/86	280	256-280	598	7.84	1,600
P253B	05/18/86	347	335-347	773	7.92	1,100
P253B	05/14/86	360	356-360	807	7.93	900
P253B	05/19/86	382	380-382	864	7.85	850

TABLE B-3 (Continued-4)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements pH	Water Measurements Conductivity (umhos/cm)
P254A	01/28/86	100	85-100	26	7.94	1,200
P254B	01/03/86	165	157-165	21	7.46	2,600
P254B	01/06/86	185	-	73	6.82	3,150
P254B	01/07/86	205	198-205	125	7.47	1,800
P254B	01/08/86	225	220-225	178	6.87	3,200
P254B	01/08/86	245	220-245	230	7.06	3,000
P254B	01/09/86	265	238-265	282	7.48	1,950
P254B	01/11/86	285	265-285	334	7.39	800
P254B	01/11/86	305	285-305	386	7.53	900
P254B	01/14/86	325	285-325	439	7.58	950
P254B	01/15/86	345	285-345	490	7.88	750
P254B	01/16/86	365	285-365	543	7.98	650
P255B	06/07/86	25	10-25	24	7.48	1,900
P255B	06/09/86	35	no open	50	7.33	2,700
P255B	06/09/86	45	no open	76	7.47	2,100
P255B	06/10/86	55	no open	102	7.26	2,000
P255B	06/11/86	65	no open	128	7.36	1,150
P255B	06/11/86	80	75-80	167	7.10	1,300
P255B	06/11/86	90	no open	193	7.81	1,300
P255B	06/12/86	100	no open	219	7.75	1,000
P255B	06/12/86	110	no open	245	7.59	1,100
P255B	06/13/86	120	no open	272	7.74	950
P255B	06/13/86	130	no open	298	7.92	750
P255B	06/14/86	145	140-145	337	7.82	700
P255B	06/14/86	155	154-155	363	7.89	600
P256	02/15/86	35	open	18	6.91	3,050
P256	02/17/86	40	38-40	31	7.71	2,750
P256	02/17/86	45	44-45	44	7.01	2,950
P256	02/18/86	50	49-50	57	6.96	3,300
P256	02/18/86	55	54-55	71	6.78	3,150
P256	02/18/86	60	59-60	84	6.50	3,500
P256	02/18/86	65	64-65	97	6.51	3,300
P256	02/19/86	70	-	110	lost	3,000
P256	02/19/86	75	-	123	lost	3,400
P256	02/19/86	80	79-80	136	6.36	3,350
P256	02/19/86	85	84-85	149	6.50	3,350
P256	02/19/86	90	89-90	162	6.31	3,500
P256	02/20/86	95	94-95	175	6.36	3,800
P256	02/20/86	100	98.5-100	188	6.16	3,800
P256	02/21/86	105	104-105	201	6.19	3,800
P256	02/21/86	110	109-110	214	6.32	3,800
P256	02/21/86	115	114.5-115	227	6.24	3,750

TABLE B-3 (Continued-5)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements pH	Water Measurements Conductivity (umhos/cm)
P256	02/24/86	120	119-120	240	6.93	3,100
P256	02/24/86	125	124-125	253	6.88	3,200
P256	02/24/86	130	129-130	266	6.78	3,350
P256	02/24/86	135	134-135	279	6.81	3,400
P256	02/25/86	140	139-140	292	6.88	3,400
P256	02/26/86	145	114-145	305	6.79	3,350
P256	02/27/86	150	149-150	318	6.85	3,350
P256	02/27/86	155	154-155	331	6.68	3,300
P256	02/27/86	160	159-160	344	6.66	3,300
P256	02/27/86	165	164-165	357	6.84	3,350
P256	02/27/86	170	169-170	370	6.69	3,350
P256	02/28/86	175	174-175	396	6.74	3,200
P256	02/28/86	180	179-180	409	6.78	3,100
P256	03/04/86	195	194-195	436	7.34	1,900
P256	03/04/86	205	204-205	462	7.19	2,550
P256	03/07/86	215	213-215	488	6.95	2,700
P256	03/07/86	225	223-225	514	7.18	2,400
P256	03/07/86	235	233-235	541	7.41	2,450
P256	03/12/86	245	243-245	567	7.55	2,000
P256	03/12/86	255	254-255	593	7.55	2,150
P256	03/13/86	265	263-265	619	7.62	900
P256	03/21/86	278	274-278	653	7.70	800
P257	07/15/86	25	0-25	24	7.58	2,100
P257	07/16/86	50	no open	89	7.39	4,200
P257	07/17/86	60	55-60	115	7.20	4,300
P257	07/18/86	70	no open	141	7.55	3,700
P257	07/21/86	80	76-80	167	8.55	3,600
P257	07/21/86	90	no open	193	7.68	3,800
P257	07/21/86	100	95-100	219	7.71	3,750
P257	07/22/86	115	110-115	258	8.00	1,350
P258B	11/14/86	10	0-10	26	7.57	2,100
P258B	11/14/86	20	15-20	52	7.48	2,050
P258B	11/17/86	30	no open	78	7.70	2,350
P258B	11/17/86	40	no open	156	8.15	1,600
P258B	11/17/86	70	55-70	274	7.83	3,350
P258B	11/19/86	90	no open	156	7.74	3,500
P258B	11/19/86	110	95-110	274	7.67	3,400
P258B	11/20/86	130	125-130	195	7.85	3,100
P258B	11/21/86	150	140-150	235	8.10	2,000
P258B	11/24/86	170	no open	156	8.32	2,250
P258B	11/25/86	190	185-190	195	8.26	1,900
P258B	11/26/86	210	205-210	195	10.07	1,350
P258B	12/01/86	230	225-230	195	8.69	1,250

TABLE B-3 (Continued-6)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements pH	Water Measurements Conductivity (umhos/cm)
P261	10/03/86	85	80-85	13	8.03	3,750
P261	10/03/86	95	90-95	39	8.10	3,300
P261	10/03/86	105	100-105	195	7.19	1,650
P262	12/24/86	180	178-180	36	7.30	2,300
P262	12/27/86	190	188-190	54	7.44	2,450
P262	12/27/86	197	no open	72	7.97	2,400
P263	12/10/86	70	no open	16	10.50	2,250
P263	12/10/86	85	no open	52	7.95	2,650
P263	12/11/86	93	92-93	180	7.85	3,600
P263	12/12/86	105	no open	156	7.46	4,650
P263	12/12/86	115	no open	156	7.71	4,600
P263	12/29/86	125	no open	156	6.76	3,950
P263	12/30/86	135	no open	156	6.93	3,950
P263	12/30/86	145	no open	156	6.97	3,900
P263	12/31/86	155	no open	156	7.37	3,950
P263	01/02/87	165	no open	156	6.97	3,600
P263	01/02/87	175	no open	156	7.42	3,650
P263	01/05/87	185	no open	156	7.20	3,700
P263	01/05/87	195	no open	156	7.19	3,600
P263	01/06/87	205	no open	156	7.19	3,500
P263	01/06/87	215	no open	156	7.36	3,600
P263	01/07/87	225	no open	156	7.02	3,600
P263	01/07/87	235	no open	156	6.97	3,550
P263	01/08/87	245	no open	156	8.79	3,000
P263	01/08/87	255	no open	156	7.49	3,250
P263	01/09/87	265	no open	156	7.01	2,800
P263	01/09/87	275	270-275	195	7.28	1,900
P263	01/12/87	285	270-285	312	8.13	2,200
P263	01/12/87	295	270-295	352	7.95	2,300
P263	01/12/87	305	270-305	430	7.98	2,400
P263	01/12/87	315	270-315	509	7.96	2,200
P263	01/12/87	325	270-325	587	7.99	1,750
P265	03/10/87	120	115-120	35	7.62	4,200
P265	03/11/87	130	no open	65	7.92	1,950
P265	03/11/87	142	no open	78	7.61	1,800
P266	11/05/86	215	195-215	29	8.09	2,100
P266	11/05/86	225	215-225	235	8.02	2,200
P266	11/07/86	235	234-235	165	8.15	2,100

TABLE B-3 (Continued-7)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements pH	Conductivity (umhos/cm)
P267B	01/14/87	145	no open	18	7.90	2,100
P267B	01/19/87	165	no open	90	8.15	2,200
P267B	01/20/87	185	no open	108	8.34	2,100
P267B	01/20/87	205	no open	156	8.53	2,000
P267B	01/21/87	225	no open	156	7.79	1,800
P267B	01/23/87	245	no open	156	7.89	1,750
P267B	01/24/87	265	no open	156	7.87	1,750
P267B	01/25/87	285	no open	156	7.83	1,700
P267B	01/28/87	305	no open	156	7.77	1,300
P267B	02/02/87	325	no open	156	8.00	1,250
P268	10/21/86	210	205-210	15	8.22	2,000
P268	10/22/86	220	217-220	102	7.82	2,600
P268	10/22/86	230	229-230	165	7.64	2,450
P269	10/09/86	130	110-130	133	7.27	3,150
P269	10/09/86	140	135-140	195	7.92	2,600
P269	10/09/86	150	142-150	219	7.86	2,150
P270A	11/11/86	55	15-55	86	7.39	1,650
P270A	11/11/86	65	15-65	149	7.69	1,600
P270A	11/13/86	80	65-80	274	7.47	1,200
P270	03/17/87	35	no open	18	7.32	1,850
P270	03/17/87	45	no open	18	8.21	2,000
P270	03/18/87	55	50-55	72	7.87	1,950
P270	03/18/87	65	50-65	90	7.77	1,950
P270	03/18/87	75	50-75	108	7.70	1,950
P270	03/18/87	85	50-85	108	7.63	1,900
P270	03/18/87	95	50-95	108	7.57	1,900
P270	03/18/87	105	50-105	108	7.50	1,950
P270	03/19/87	115	50-115	126	7.40	1,950
P270	03/19/87	125	50-125	126	7.44	1,950
P270	03/19/87	135	50-135	180	7.41	1,900
P270	03/19/87	145	50-145	180	7.02	2,000
P270	03/19/87	155	50-155	180	7.10	2,000
P270	03/19/87	165	50-165	195	7.12	1,900
P270	03/19/87	175	50-175	195	7.17	1,900
P270	03/20/87	185	50-185	195	7.53	1,950
P270	03/23/87	195	50-195	195	7.44	1,700
P270	03/23/87	199	50-199	195	7.50	1,600

TABLE B-3 (Continued-8)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements	
					pH	Conductivity (umhos/cm)
P264	06/30/87	306	no open	78	5.66	4,250
P264	06/30/87	316	no open	156	3.58	11,000
P264	06/30/87	326	326-331	196	3.37	11,500
P264	07/01/87	336	no open	156	3.86	19,500
P264	07/01/87	346	no open	156	3.90	19,000
P264	07/02/87	355	no open	156	3.85	18,000
P264	07/02/87	365	no open	156	3.90	19,000
P264	07/07/87	375	no open	156	3.46	11,000
P264	07/07/87	385	no open	156	3.34	12,500
P264	07/08/87	395	no open	156	4.10	15,000
P264	07/09/87	405	no open	156	4.76	6,550
P264	07/09/87	415	no open	156	5.48	5,950
P264	07/13/87	425	no open	156	5.89	4,450
P264	07/13/07	435	425-435	235	6.33	3,050
P264	07/13/87	445	no open	156	6.65	3,450
P264	07/14/87	455	no open	156	6.62	3,350
P264	07/15/87	465	460-465	196	6.76	3,150
P264	07/15/87	475	460-475	274	7.23	2,950
P264	07/16/87	485	no open	156	7.56	2,850
P264	07/20/87	495	no open	156	7.28	3,050
P271	09/25/86	60	0 - 60	156	7.34	3,050
P271	09/25/86	75	0 - 75	274	7.36	3,200
P272	09/29/86	85	0 - 85	164	7.12	2,950
P272	09/29/86	95	0 - 95	243	7.09	2,800
P272	09/30/86	105	0-105	321	7.28	2,950
P273	06/11/87	275	no open	102	7.83	3,100
P273	06/11/87	285	no open	156	7.72	3,150
P273	06/12/87	295	286-295	225	7.67	3,000
P273	06/25/87	310	305-310	195	8.19	1,750
P273	06/26/87	320	315-320	195	7.14	1,800
P273	06/26/87	330	325-330	195	7.53	1,850
P273	06/26/87	340	334-335	165	7.95	1,800
P274	09/25/86	270	265-270	196	7.37	2,000
P274	09/25/86	290	288-290	172	7.75	1,050
P274	09/26/85	307	288-307	305	7.71	950
P275	09/16/86	170	165-170	196	7.74	2,600

TABLE B-3 (Continued-9)

Well	Date	Borehole Depth (feet)	Open Interval Below Grade (feet)	Approximate Gallons Removed From Casing	Water Measurements	
					pH	Conductivity (umhos/cm)
P276	05/06/87	295	no open	80	6.97	1,250
P277	04/24/87	285	272-285	80	6.99	2,250
P277	04/24/87	295	292-295	160	7.49	2,200
P277	04/27/87	305	no open	160	7.04	2,300
P277	04/27/87	315	no open	160	7.78	2,200
P277	04/29/87	335	no open	160	7.78	2,200
P277	04/29/87	355	no open	160	7.54	2,100
P277	04/30/87	375	no open	160	7.50	2,100
P277	05/04/87	400	no open	160	6.52	2,000
P278B	07/20/87	260	255-260	195	7.16	1,850
P278B	07/20/87	270	255-270	274	7.33	1,850
P278B	07/21/87	280	255-280	352	7.28	1,800

TABLE B-4

WATER QUALITY SUMMARY
COMPLETED WELLS

Well Designation	Date	Depth To Water (ft)*	pH	Conductivity (µmhos/cm)
P241A	06-03-86	276.31	7.73	3,600
P241C	08-21-86	236.90	7.11	1,100
P242	09-30-85	166.40	4.78	7,300
P243	09-30-85	60.83	7.39	900
P244A	09-30-85	47.80	4.46	14,000
P244B	09-30-85	49.52	7.25	2,800
P244C	09-30-85	48.15	7.47	2,700
P245	09-30-85	62.50	6.74	1,800
P246	01-17-86	216.32	13.03	6,800
P247A	04-18-86	187.15	6.88	3,400
P247B	04-14-86	174.03	7.09	1,700
P248A	03-18-86	61.12	3.79	7,200
P248B	01-23-86	62.02	5.03	4,650
P248C	12-23-85	59.58	7.07	2,100
P249A	04-18-86	259.22	5.98	1,700
P249B	06-03-86	256.50	7.71	1,250
P250A	05-13-87	292.20	7.69	1,550
P250B	03-16-87	291.50	8.15	1,250
P251	04-04-86	20.85	7.71	1,750
P252A	08-21-86	118.70	7.53	1,100
P252B	09-24-86	114.60	7.30	2,750
P252C	08-28-86	128.70	8.16	1,500
P253A	06-25-86	47.11	7.65	2,800
P253B	05-30-86	51.07	8.13	700
P254A	05-18-86	159.54	7.53	3,250
P254B	02-07-86	156.80	8.41	700
P255A	06-25-86	17.52	7.57	2,200
P255B	06-25-86	15.75	8.08	700

* Measured from top of 4-inch PVC casing

TABLE B-4 (Continued-2)

Well Designation	Date	Depth To Water (ft)*	pH	Conductivity (µmhos/cm)
P256	04-18-86	28.35	7.75	950
P257	08-21-86	16.03	7.90	4,600
P258A	12-22-86	-9.08	7.36	3,300
P258B	12-10-86	10.19	7.88	1,900
P261	11-12-86	80.45	7.76	1,850
P262	02-12-87	172.50	7.40	2,300
P263	02-02-87	52.85	7.20	3,500
P265	03-20-87	111.92	7.72	2,000
P266	11-20-86	204.02	7.75	2,300
P267A	03-05-87	122.60	7.66	2,640
P267B	03-13-87	125.65	8.18	1,150
P268	11-12-86	210.80	7.84	2,400
P269	10-23-86	112.95	7.42	2,550
P270	04-07-87	38.31	7.73	720
P271	10-16-86	40.68	7.52	2,600
P272	10-23-86	63.48	7.03	2,950
P274	10-16-86	246.70	8.11	950
P275	09-23-86	122.50	8.22	2,250
P276	05-19-87	285.91	7.06	1,500
P277	05-29-87	270.55	7.21	2,100

* Measured from top of 4-inch PVC casing

TABLE B-5

PERMANENT MONUMENT SURVEY SUMMARY

Site Number	Township and Range Coordinates	Kennecott Coordinates North	Kennecott Coordinates East	Elevation Permanent Bench Mark
P241A	NW¼NW¼NW¼ Sec. 23, T.3 S., R.2 W.	12459.0	32336.4	5046.73
P241C	NW¼NW¼SW¼ Sec. 23, T.3 S., R.2 W.	9815.1	32354.3	5014.64
P242	NE¼NE¼NE¼ Sec. 17, T.3 S., R.2 W.	17718.5	21402.7	5352.06
P243	NW¼NW¼NE¼ Sec. 29, T.3 S., R.2 W.	6576.2	19468.7	5411.58
P244	SE¼SE¼SE¼ Sec. 30, T.3 S., R.2 W.	2296.0	16055.8	5687.94
P245	SE¼SE¼NE¼ Sec. 19, T.3 S., R.2 W.	10344.9	16061.5	5543.88
P246	SW¼NE¼SW¼ Sec. 17, T.3 S., R.2 W.	14305.8	18098.0	5500.91
P247A	NE¼NW¼NE¼ Sec. 20, T.3 S., R.1 W.	12335.5	51564.1	4635.18
P247B	NW¼NW¼NE¼ Sec. 20, T.3 S., R.1 W.	12263.7	51285.5	4621.62
P248	SW¼SE¼NW¼ Sec. 17, T.3 S., R.2 W.	15450.5	17837.8	5345.14
P249	NW¼NW¼SW¼ Sec. 10, T.3 S., R.2 W.	20386.3	27219.5	5155.04
P250	NW¼SE¼NW¼ Sec. 11, T.3 S., R.2 W.	20448.56	33686.85	-
P251	SW¼NE¼NW¼ Sec. 34, T.2 S., R.1 W.	32791.0	59901.0	4392.29
P252	SE¼SE¼SE¼ Sec. 5, T.3 S., R.1 W.	23093.1	53493.4	4554.49
P253	SW¼NW¼SW¼ Sec. 15, T.3 S., R.1 W.	14256.9	58858.3	4479.53
P254	NE¼NE¼NE¼ Sec. 19, T.3 S., R.1 W.	12364.0	48202.5	4761.31
P255	NE¼NW¼SE¼ Sec. 30, T.3 S., R.1 W.	4543.1	46453.2	4684.23
P256	SW¼SW¼SW¼ Sec. 20, T.3 S., R.1 W.	7219.8	48334.1	4640.59
P257	NW¼NW¼NE¼ Sec. 30, T.3 S., R.1 W.	6682.9	46188.7	4686.51
P258	NW¼NW¼SW¼ Sec. 11, T.3 S., R.1 W.	19879.34	64238.91	4393.75
P261	NE¼NE¼NE¼ Sec. 18, T.3 S., R.1 W.	17786.43	48259.56	4688.56
P262	NW¼NW¼SE¼ Sec. 20, T.3 S., R.1 W.	9817.52	50953.12	4630.90
P263	SE¼SE¼SE¼ Sec. 19, T.3 S., R.1 W.	7673.13	46746.08	4681.70
P266	NW¼SW¼NE¼ Sec. 26, T.3 S., R.2 W.	5072.65	35290.26	4914.43
P267	SW¼SE¼NW¼ Sec. 35, T.3 S., R.2 W.	-204.95	34107.23	4964.11
P268	NW¼NW¼NW¼ Sec. 27, T.3 S., R.2 W.	7179.64	27070.60	5121.94
P269	SW¼SW¼NE¼ Sec. 28, T.3 S., R.2 W.	4735.64	24459.63	5184.72
P271	SE¼SE¼SW¼ Sec. 29, T.3 S., R.2 W.	2270.54	18919.64	5484.50
P272	NW¼NW¼SW¼ Sec. 29, T.3 S., R.2 W.	5958.55	16583.39	5603.83
P274	NW¼NW¼NW¼ Sec. 21, T.3 S., R.2 W.	12415.53	22190.17	5334.57
P275	SW¼NW¼NW¼ Sec. 9, T.3 S., R.2 W.	21916.17	21833.40	5345.45

TABLE B-6

PERMANENT WELL ABANDONMENT SUMMARY

Well Designation	Well Diameter (inches)	Well Depth (feet)	Volume of Grout Used (cubic yards)
P234	6.0	90.2	0.77
K122	4.5	71.0	1.16
W337	4.0	215.0*	2.93
P198	4.5	510.0	5.53
P199	4.5	565.0	6.01

* Depth estimated; pump blocked casing @ 206 feet below ground level.

TABLE B-7

ESTIMATED ELEVATIONS
FOR THE PROJECTED TOP OF SEMICONSOLIDATED TO CONSOLIDATED SEDIMENTS

Site Number And* Well Designation	Probable Contact Depth (feet)	Probable Contact Elevation (feet MSL)
P241A	120	4920±
P241C	140	4870±
P247B	530	4090±
P249A,B	145	5020±
250A,B	125	4865±
P252C	255	4300±
P254B	280	4480±
P256	270	4370±
P258B	205	4190±
P263	270	4405±
P266	155	4765±
P267B	115	4850±
P268	135	4985±
P269	85	5105±
P276	70	4910±
P277	180	4850±
P273	120	5065±

* Only sites with borings started in Quaternary alluvium included.

TABLE B-8

INITIAL OCCURRENCE OF WATER
DURING DRILLING PHASE

Well Number	First Occurred Depth* (ft)	Borehole Depth (ft)	Water Level In Completed Well (ft)**
P241A	274	285	276.31
P241C	242	250	236.90
P242	166	196	166.40
P243	63	75	60.83
P244A	48	55	47.80
P244B	50	65	49.52
P244C	48	55	48.15
P245	58	140.5	62.50
P246	206	259	216.32
P247A	187	190	187.15
P247B	125	170	174.03
P248A	61	100	61.12
P248B	62	120	62.02
P248C	61	65	59.58
P249A	252	305	259.22
P249B	270	275	256.50
P250A	292	320	292.20
P250B	290	295	291.50
P251	25	40	20.85
P252A	119	155	118.70
P252B	115	255	114.60
P252C	87	105	128.70
P253A	25	45	47.11
P253B	52	147	51.07
P254A	69	106	159.54
P254B	157	165	156.80
P255A	18	60	17.52
P255B	26	25	15.75
P256	27	35	28.35
P257	16	25	16.03
P258A	8	10	-9.08
P258B	8	10	10.19
P261	75	85	80.45
P262	167	180	172.50
P263	64	70	52.85

TABLE B-8 (Continued)

Well Number	First Occurred Depth* (ft)	Borehole Depth (ft)	Water Level In Completed Well (ft)**
P264	286	306	-
P265	112	120	111.92
P266	203	215	204.02
P267A	122	135	122.60
P267B	137	145	125.65
P268	209	210	210.80
P269	122	130	112.95
P270	21	35	38.31
P271	50	60	40.68
P272	63	85	63.48
P273	262	275	260.60
P274	266	270	246.70
P275	121	170	122.5
P276	285	295	285.91
P277	270	285	270.55
P278B	244	260	-

* Measured below grade

** Measured from top of 4" PVC

TABLE B-9

WATER QUALITY DATA AS A FUNCTION OF DEPTH

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P241A	5 7 86	285	7.5	3350	1880	3440
P241A	5 9 86	305	7.5	3600	2310	4070
P241A	5 12 86	331	6.9	3750	2520	4370
P241C	6 13 86	250	7.9	1750	441	1240
P241C	6 15 86	270	7.7	1750	567	1270
P241C	6 24 86	315	7.7	2050	8	1650
P241C	6 24 86	330	7.7	2000	8	1600
P241C	6 25 86	350	7.9	2100	943	1840
P241C	6 26 86	370	10.2	1900	383	1590
P241C	6 26 86	390	10.1	1600	289	1380
P241C	6 28 86	410	7.7	1000	61	641
P241C	7 1 86	430	8.2	1050	686	670
P243	8 27 85	80	7.2	780	85	402
P243	8 27 85	87	7.6	760	0	416
P244B	8 29 85	62	4.4	12800	12300	18100
P244B	8 30 85	75	0.0	3800	467	2330
P244C	9 6 85	55	4.0	14000	9870	15100
P244C	9 9 85	87	4.8	14000	9220	15200
P244C	9 10 85	110	6.9	3200	738	2400
P245	10 16 85	64	6.9	1530	42	703
P246	10 10 85	260	7.2	1100	250	814
P247B	10 25 85	170	7.4	1780	570	1230
P247B	10 25 85	190	7.2	2150	566	1220
P247B	10 25 85	210	7.0	3000	1010	2070
P247B	10 30 85	230	7.0	3000	1890	3070
P247B	10 30 85	250	7.1	3500	1920	3120
P247B	11 1 85	270	7.2	2900	1580	2530
P247B	11 1 85	290	7.4	3000	1460	2500
P247B	11 1 85	310	7.3	2650	1280	2280
P247B	11 5 85	330	7.3	2250	1260	2150
P247B	11 11 85	350	7.1	2900	1780	3220
P247B	11 14 85	410	6.8	3300	2150	3760
P247B	11 16 85	430	7.2	3200	1820	3170
P247B	11 26 85	470	7.2	2650	1360	2420
P247B	11 27 85	490	7.0	2300	945	1930
P247B	11 29 85	506	7.6	1650	614	1410
P247B	12 6 85	525	7.1	2000	909	1760
P247B	12 11 85	570	6.5	2200	790	2080
P247B	1 2 86	610	7.4	1850	438	1300
P249B	3 14 86	325	7.5	2250	862	1890
P249B	3 14 86	340	7.8	1550	296	1100
P249B	3 18 86	360	7.6	1300	158	854
P250B	2 5 87	290	8.4	1550	187	995
P250B	2 6 87	315	8.4	1400	129	818

TABLE B-9 (Continued-2)

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P250B	2 12 87	375	8.2	1250	84	773
P251	3 24 86	40	7.1	2400	501	1630
P251	3 24 86	55	7.2	2200	365	1320
P251	3 24 86	65	7.1	2000	310	1180
P251	3 24 86	75	7.0	1720	292	1160
P251	3 27 86	85	7.4	2200	310	1140
P251	3 27 86	95	7.3	1950	298	1150
P251	3 27 86	105	7.2	1700	313	1190
P251	3 27 86	115	7.4	1900	286	1100
P251	3 27 86	125	7.2	1900	292	1150
P251	3 27 86	135	7.3	2000	324	1230
P251	3 28 86	145	7.4	1900	289	1120
P252B	6 27 86	105	7.7	1150	199	724
P252B	7 1 86	135	7.8	1150	203	754
P252B	7 2 86	155	7.8	1200	197	740
P252B	7 3 86	175	7.3	1400	236	909
P252B	7 7 86	195	7.5	1400	288	1010
P252B	7 8 86	215	7.2	2150	676	1760
P252B	7 8 86	235	7.2	2600	985	2340
P252B	7 9 86	255	6.9	2600	1130	2460
P252B	7 11 86	265	7.0	2500	1020	2390
P252B	7 14 86	275	7.1	2200	900	1940
P252B	7 15 86	295	7.3	1850	642	1460
P252B	7 15 86	315	7.5	1600	562	1260
P252B	7 17 86	335	7.4	1650	600	1310
P252C	7 18 86	355	7.6	1550	591	1250
P252C	7 21 86	375	7.7	1250	381	924
P252C	7 22 86	395	7.8	1250	371	889
P253B	5 1 86	120	8.6	1500	510	1060
P253B	5 1 86	140	8.2	1650	510	1190
P253B	5 5 86	165	7.6	1800	534	1250
P253B	5 5 86	185	7.6	2150	579	1500
P253B	5 8 86	225	7.6	1750	508	1230
P253B	5 9 86	255	7.7	1400	361	994
P253B	5 10 86	280	7.8	1600	452	1150
P253B	5 13 86	347	7.9	1100	199	665
P253B	5 14 86	360	7.9	900	97	487
P253B	5 16 86	382	7.8	850	72	441
P254B	14 1 60	185	6.8	3150	1790	3470
P254B	14 1 60	205	7.5	1800	1850	3580
P254B	14 1 60	225	6.9	3200	692	1540
P254B	14 1 60	245	7.1	3000	1280	2710
P254B	14 1 60	265	7.5	1950	619	1510
P254B	14 1 60	285	7.4	800	60	568

TABLE B-9 (Continued-3)

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P254B	1 14 86	305	7.3	900	51	448
P254B	1 14 86	325	7.6	950	48	447
P254B	1 15 86	345	7.9	750	42	381
P254B	1 16 86	365	8.0	650	40	351
P255B	6 9 86	35	7.3	2700	312	1870
P255B	6 9 86	45	7.4	2100	277	1390
P255B	6 10 86	55	7.3	2000	250	1320
P255B	6 11 86	65	7.4	1150	142	685
P255B	6 11 86	80	7.1	1300	194	828
P255B	6 11 86	90	7.6	1300	200	867
P255B	6 12 86	100	7.8	1000	78	540
P255B	6 12 86	110	7.6	1100	163	670
P255B	6 13 86	120	7.7	950	70	506
P255B	6 13 86	130	7.9	750	51	399
P255B	6 14 86	145	7.8	700	49	370
P255B	6 14 86	155	7.9	600	39	336
P256	2 18 86	50	7.3	3300	1070	2670
P256	2 18 86	55	8.0	3150	976	2610
P256	2 18 86	60	7.5	3500	1280	3130
P256	2 18 86	65	0.0	3500	1150	2970
P256	2 20 86	100	6.2	3800	1810	3680
P256	2 21 86	105	6.2	3800	1790	3650
P256	2 21 86	110	6.3	3800	1769	3550
P256	2 21 86	115	6.2	3750	1610	3350
P256	2 26 86	145	6.8	3350	1220	2700
P256	2 27 86	150	6.8	3350	1190	2720
P256	2 27 86	155	6.7	3300	1150	2650
P256	2 27 86	160	6.7	3300	1210	2730
P256	2 27 86	165	6.8	3350	1260	2840
P256	2 27 86	170	6.7	3350	1220	2750
P256	3 4 86	175	6.7	3200	1240	2830
P256	3 4 86	180	6.8	3100	1080	2660
P256	3 4 86	195	7.3	1900	581	1510
P256	3 4 86	205	7.1	2550	798	1970
P256	3 5 86	215	7.0	2700	1000	2370
P256	3 6 86	225	7.2	2400	846	1990
P256	3 7 86	235	7.4	2450	896	2030
P256	3 13 86	245	7.5	2000	726	1580
P256	3 13 86	255	7.5	2150	862	1990
P256	3 14 86	265	7.6	900	159	564
P256	3 14 86	278	7.7	800	98	509
P257	7 15 86	25	7.6	2100	620	1550
P257	7 16 86	50	7.4	4200	1670	3870
P257	7 17 86	60	7.2	4300	1760	3920

TABLE B-9 (Continued-4)

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P257	7 18 86	70	7.5	3700	1360	3200
P257	7 21 86	80	8.6	3600	1360	3020
P257	7 21 86	90	7.7	3800	1470	3370
P257	7 21 86	100	7.7	3750	1440	3250
P257	7 22 86	115	8.0	1350	61	799
P258B	11 14 86	10	7.6	2100	589	1580
P258B	11 14 86	20	7.5	2050	583	1590
P258B	11 17 86	30	7.7	2350	796	1830
P258B	11 17 86	40	8.2	1600	515	1170
P258B	11 17 86	70	7.8	3350	1330	2910
P258B	11 19 86	90	7.7	3500	1360	3000
P258B	11 19 86	110	7.7	3400	1230	2800
P258B	11 20 86	130	7.8	3100	1000	2610
P258B	11 21 86	150	8.1	2000	296	1400
P258B	11 24 86	170	8.3	2250	580	1760
P258B	11 25 86	190	8.3	1900	435	1370
P258B	11 26 86	210	10.1	1350	262	846
P258B	12 1 86	230	8.7	1250	223	717
P261	10 3 86	85	8.0	3750	378	2440
P261	10 3 86	95	8.1	3300	391	2340
P261	10 3 86	105	7.2	1650	294	1050
P262	12 24 86	180	7.3	2300	647	1650
P262	12 27 86	190	7.4	2450	761	1850
P262	12 27 86	197	8.0	2400	767	1870
P263	12 10 86	70	10.5	2250	669	1710
P263	12 10 86	85	8.0	2650	1080	2700
P263	12 11 86	93	7.8	3600	1930	3760
P263	12 12 86	105	7.5	4650	2260	4460
P263	12 12 86	115	7.7	4600	2290	4470
P263	12 27 86	125	6.8	3950	2400	4230
P263	12 30 86	135	6.9	3950	2110	4110
P263	12 30 86	145	7.0	3950	2100	3990
P263	12 31 86	155	7.4	3950	2060	4020
P263	1 2 87	165	7.0	3600	1750	3660
P263	1 2 87	175	7.4	3650	1790	3610
P263	1 5 87	185	7.2	3700	1800	3640
P263	1 5 87	195	7.2	3600	1760	3630
P263	1 6 87	205	7.2	3500	1770	3500
P263	1 6 87	215	7.4	3500	1680	3580
P263	1 7 87	225	7.0	3600	1720	3530
P263	1 7 87	235	7.0	3550	1730	3560
P263	1 8 87	245	8.8	3000	1720	2910
P263	1 8 87	255	7.5	3250	1660	3320
P263	1 9 87	265	7.0	2800	1530	3240

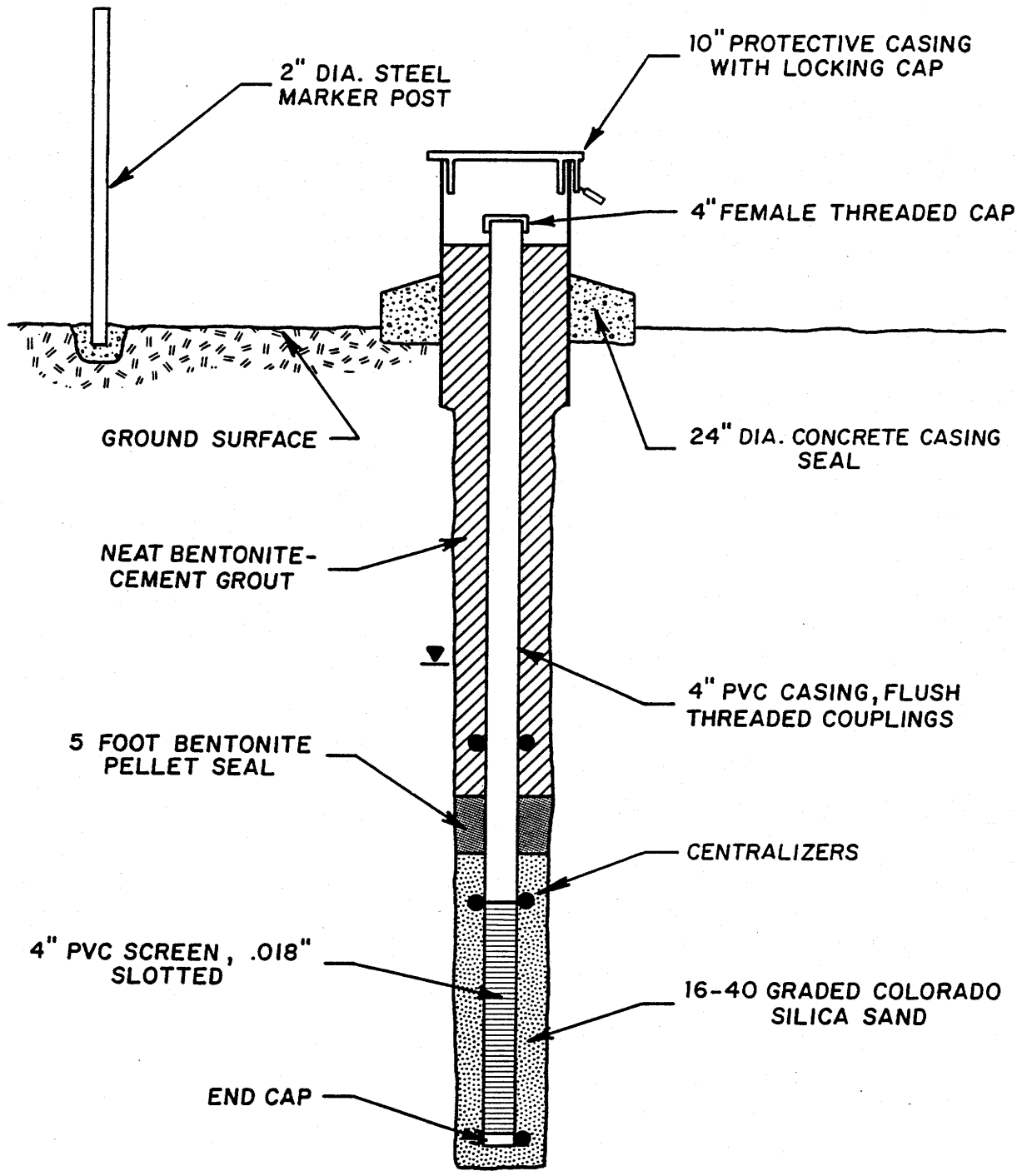
TABLE B-9 (Continued-5)

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P263	1 9 87	275	7.3	1900	790	1760
P263	1 12 87	285	8.1	2200	826	1790
P263	1 12 87	295	8.0	2300	920	1980
P263	1 12 87	305	8.0	2400	910	1930
P263	1 12 87	315	8.0	2200	847	1850
P263	1 12 87	325	8.0	1750	576	1370
P265	3 10 87	120	7.6	4200	800	3980
P265	3 11 87	130	7.9	1950	425	1350
P265	3 11 87	142	7.6	1800	408	1290
P266	11 5 86	215	8.1	2100	927	1740
P266	11 5 86	225	8.0	2200	814	1750
P267B	1 14 87	140	7.9	2100	572	1550
P267B	1 19 87	165	8.2	2200	499	1640
P267B	1 20 87	185	8.3	2100	439	1310
P267B	1 20 87	205	8.5	2000	459	1240
P267B	1 21 87	225	7.8	1800	502	1410
P267B	1 23 87	245	7.9	1750	533	1340
P267B	1 24 87	265	7.9	1750	514	1320
P267B	1 25 87	285	7.8	1700	500	1210
P267B	2 2 87	308	8.0	1250	103	779
P268	10 21 86	210	8.2	2000	714	1680
P268	10 22 86	220	7.8	2600	672	2100
P268	10 22 86	230	7.6	2450	771	1990
P268	10 22 86	240	7.8	2450	759	1883
P269	10 9 86	130	7.3	3150	1360	3090
P269	10 9 86	140	8.0	2600	1590	3040
P269	10 10 86	150	7.9	2150	1250	2370
P270	3 17 87	45	8.2	2000	798	1610
P270	3 18 87	55	7.3	1950	726	1710
P270	3 18 87	65	7.4	1950	744	1730
P270	3 18 87	75	7.5	1950	745	1720
P270	3 18 87	85	7.3	1900	731	1690
P270	3 18 87	95	7.4	1900	743	1710
P270	3 18 87	105	7.5	1950	751	1720
P270	3 19 87	115	7.5	1950	715	1700
P270	3 19 87	125	7.7	1950	677	1650
P270	3 19 87	135	7.4	1900	743	1750
P270	3 19 87	145	7.4	2000	750	1700
P270	3 20 87	155	7.1	0	719	1650
P270	3 20 87	165	7.1	0	741	1630
P270	3 20 87	175	7.2	0	737	1660
P270	3 20 87	185	7.5	0	730	1660
P270	3 23 87	195	7.4	1700	565	1390
P270	3 23 87	199	7.5	1600	473	1260

TABLE B-9 (Continued-6)

Well Number	Date	Sample Depth	pH	Conductivity	SO_4	TDS
P270A	11 11 86	55	7.4	1650	211	1270
P270A	11 11 86	65	7.7	1600	162	1110
P270A	11 13 86	80	7.5	1200	187	778
P271	9 25 86	60	7.3	3050	414	2120
P271	9 25 86	75	7.4	3200	413	2180
P272	9 29 86	85	7.1	2950	1410	2830
P272	9 29 86	95	7.1	2800	1390	2800
P272	9 30 86	105	7.3	2950	1380	2760
P274	9 25 86	270	7.4	2000	483	1370
P274	9 26 86	290	7.8	1050	58	591
P274	9 26 86	307	7.8	950	50	514
P275	9 15 86	170	7.7	2600	120	1640
P276	5 6 87	295	7.0	1250	132	750
P277	4 24 87	285	7.0	2250	994	1940
P277	4 24 87	295	7.5	2200	984	1840
P277	4 27 87	305	7.0	2300	1130	2050
P277	4 27 87	315	7.8	2200	1140	2090
P277	4 29 87	335	7.8	2200	1080	2010
P277	4 29 87	355	7.5	2100	973	1850
P277	4 30 87	375	7.5	2100	959	1840
*** Total ***						
	** ** **	47665	1784	573570	*****	*****

Note: Data not QA verified



TYPICAL MONITORING WELL

NOTE: DRAWING NOT TO SCALE.

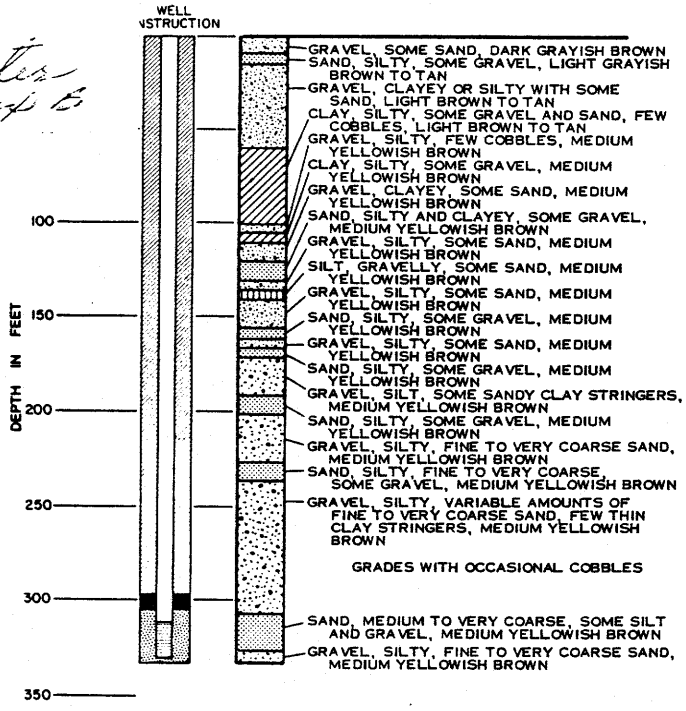
Dames & Moore

PLATE 8-1

FILE _____ BY _____ DATE _____ CHECKED BY _____ DATE _____

Master's Appendix B

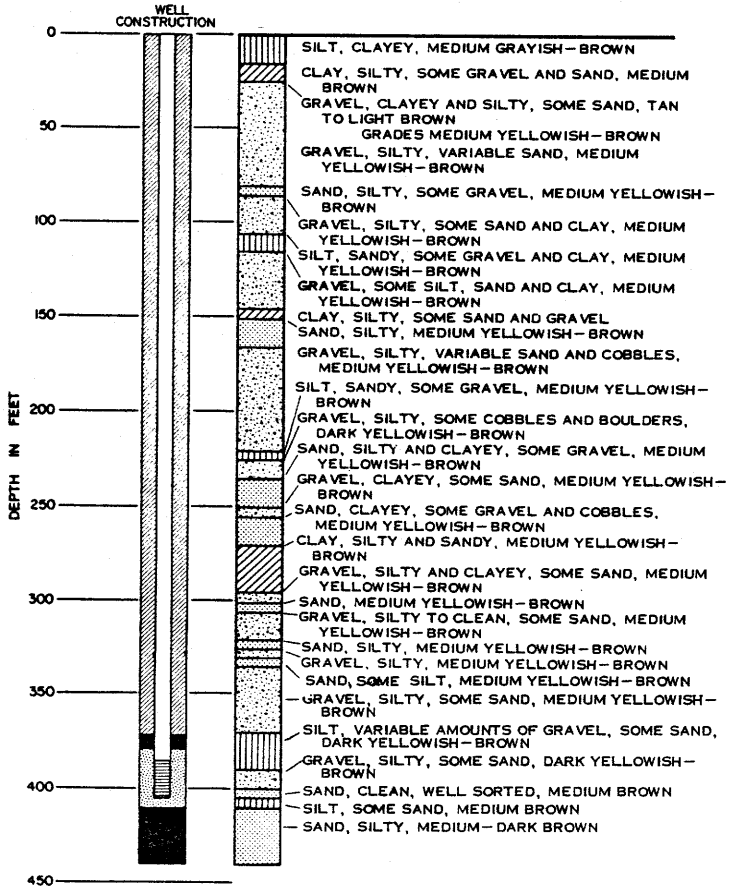
SITE P 241A



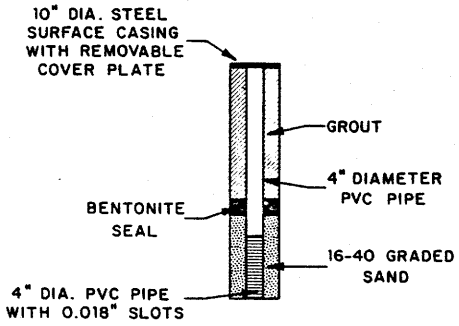
KEY

- CLAY
- SANDY CLAY
- SILT
- SAND
- GRAVEL
- VOLCANICS – RHYOLITE OR ANDESITE
- HORNBLENDE ANDESITE PORPHYRY
- TUFF
- AGGLOMERATE

SITE P 241C



KEY TO WELL CONSTRUCTION

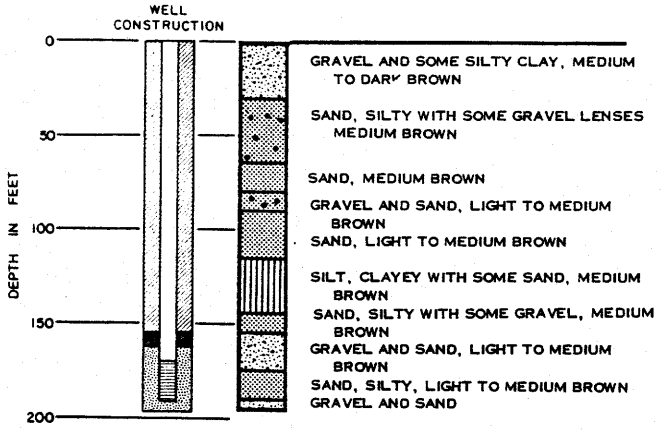


LOG OF BORINGS

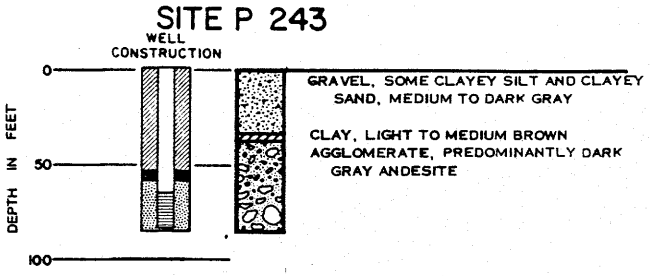
Dames & Moore

PLATE B-2A

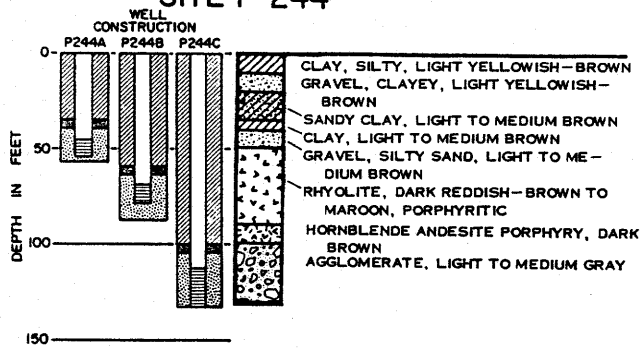
SITE P 242



SITE P 243



SITE P 244



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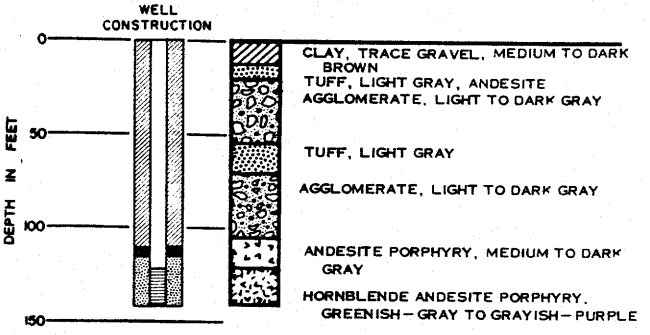
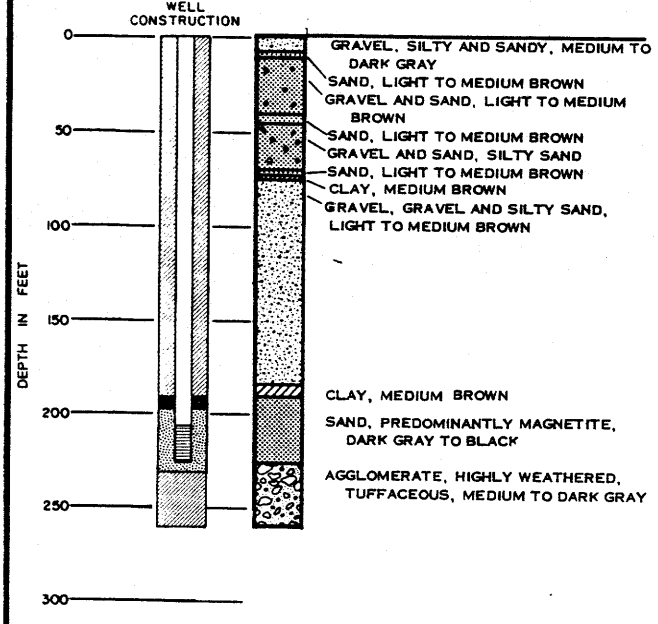
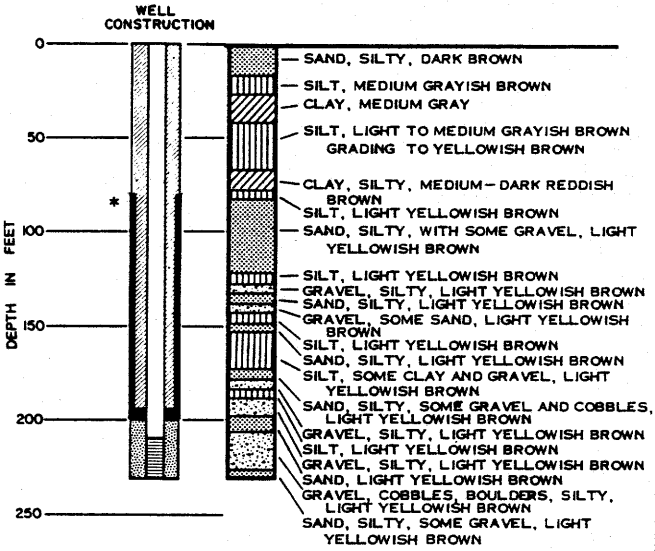


SITE P 246



SITE P 247A



*8" STEEL CASING PERFORATED AND ABANDONED DURING WELL COMPLETION

LOG OF BORINGS

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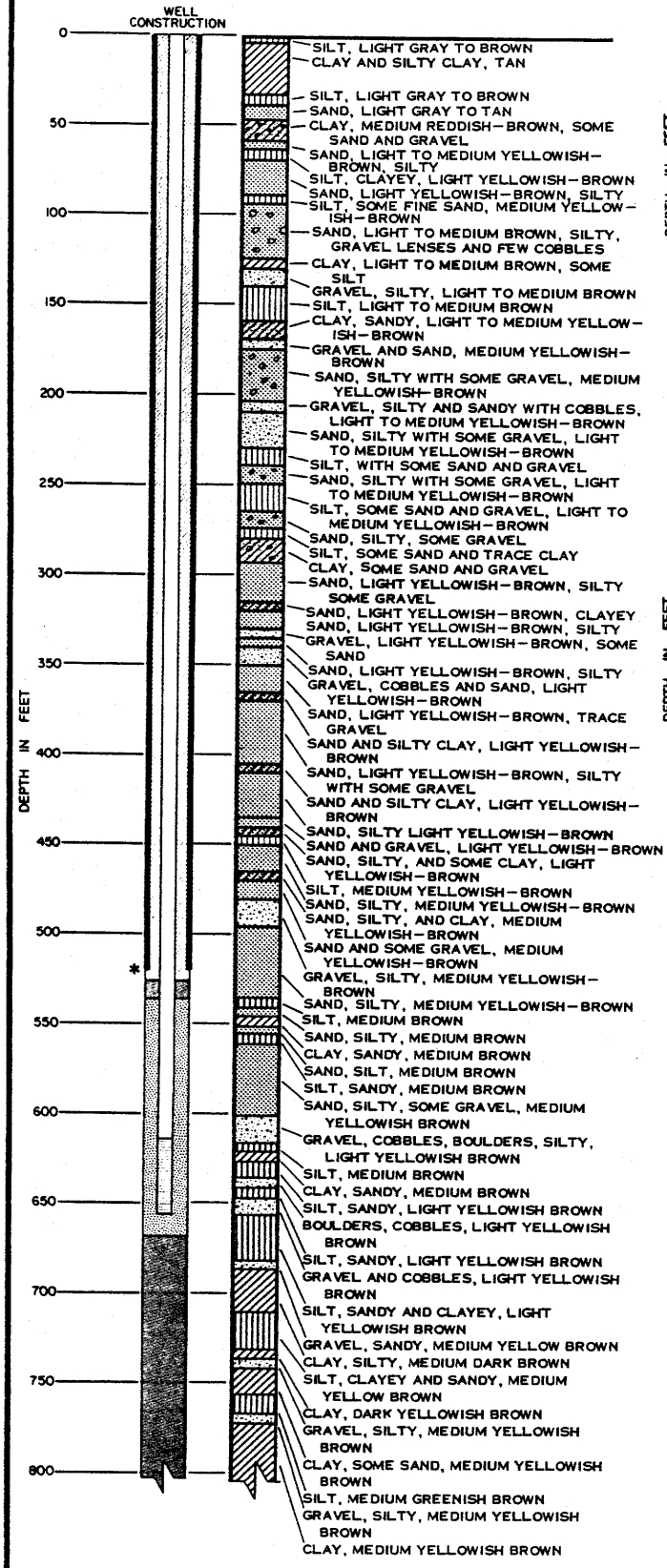
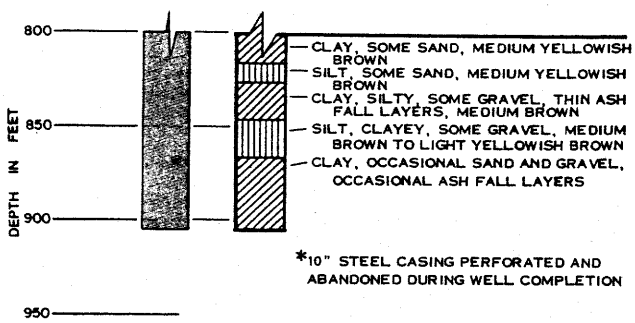
PLATE 8-28

SITE P 247B

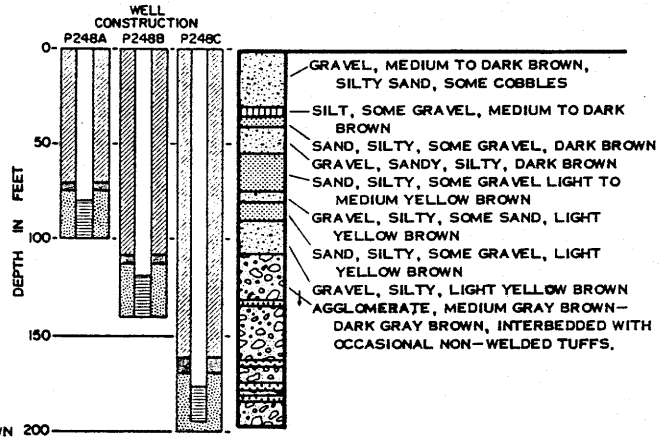


SITE P 247B (CONTINUED)



*10" STEEL CASING PERFORATED AND ABANDONED DURING WELL COMPLETION

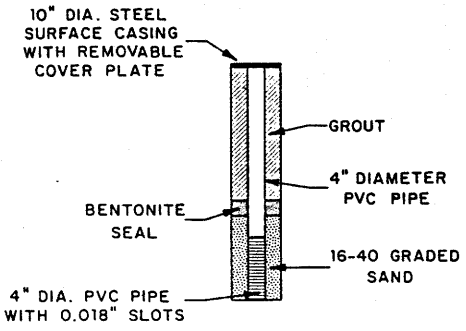
SITE P 248



KEY

- CLAY
- SANDY CLAY
- SILT
- SAND
- GRAVEL
- VOLCANICS – RHYOLITE OR ANDESITE
- HORNBLENDE ANDESITE PORPHYRY
- TUFF
- AGGLOMERATE

KEY TO WELL CONSTRUCTION



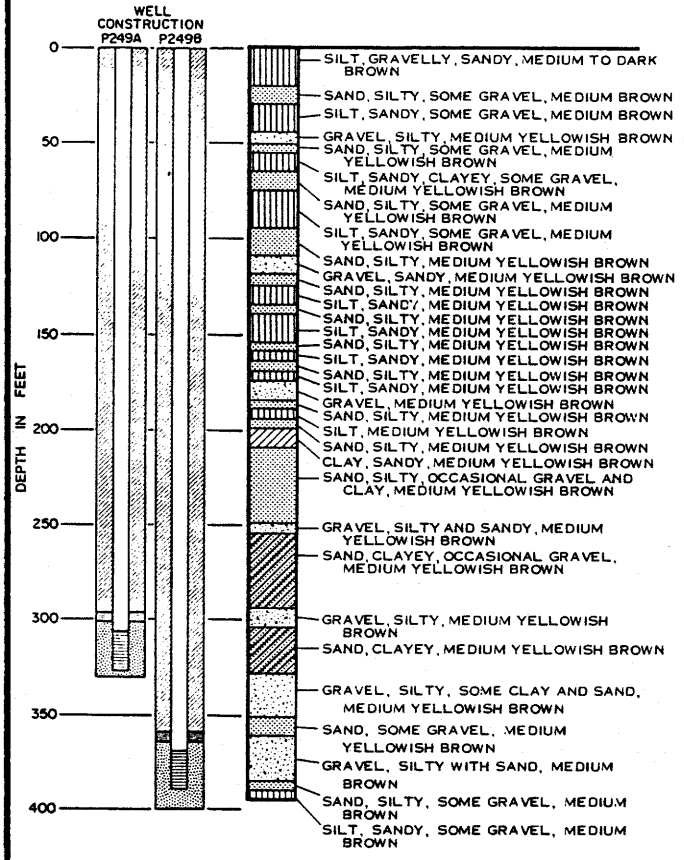
LOG OF BORINGS

Dames & Moore

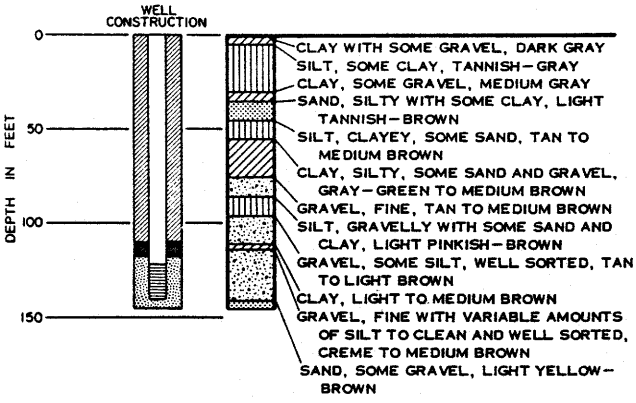
PLATE B-2C

FILE 0375-969 BY ____ DATE ____ CHECKED BY ____ DATE ____

SITE P 249



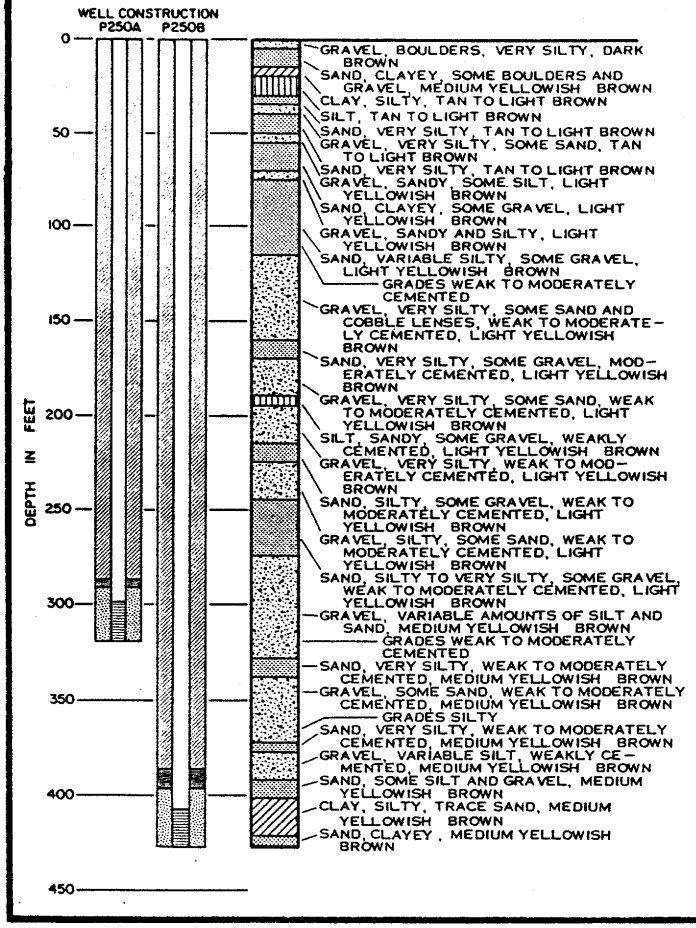
SITE P 251



KEY

- CLAY
- SANDY CLAY
- SILT
- SAND
- GRAVEL
- VOLCANICS - RHYOLITE OR ANDESITE
- HORNBLENDE ANDESITE PORPHYRY
- TUFF
- AGGLOMERATE

SITE P 250



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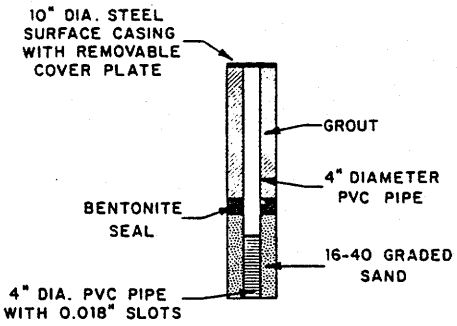

LOG OF BORINGS

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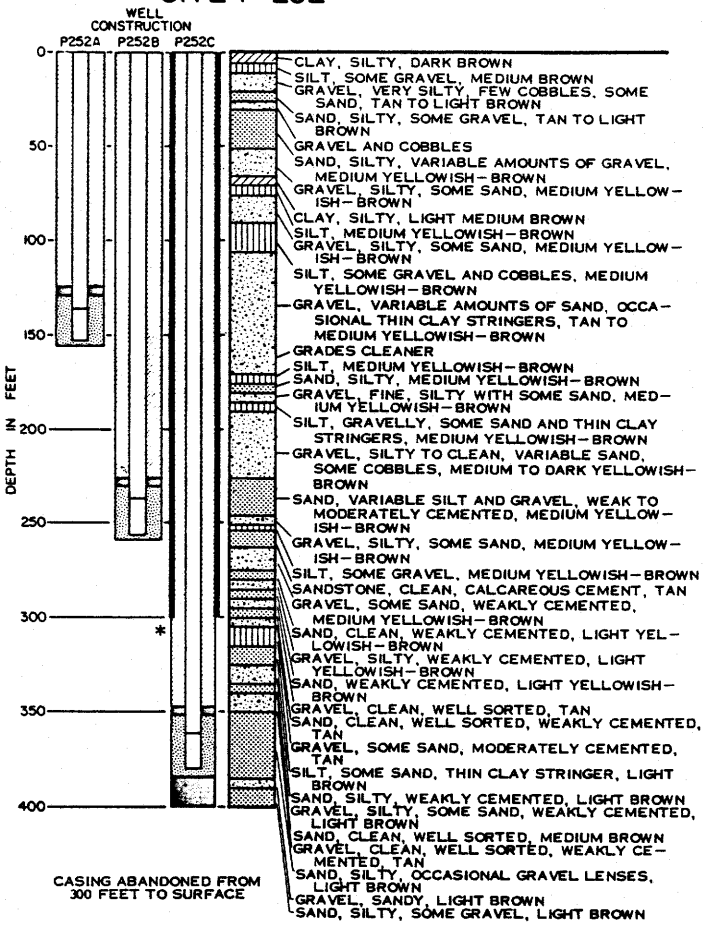
PLATE B-20

FILE 1252-006 BY DATE CHECKED BY DATE

SITE P 252



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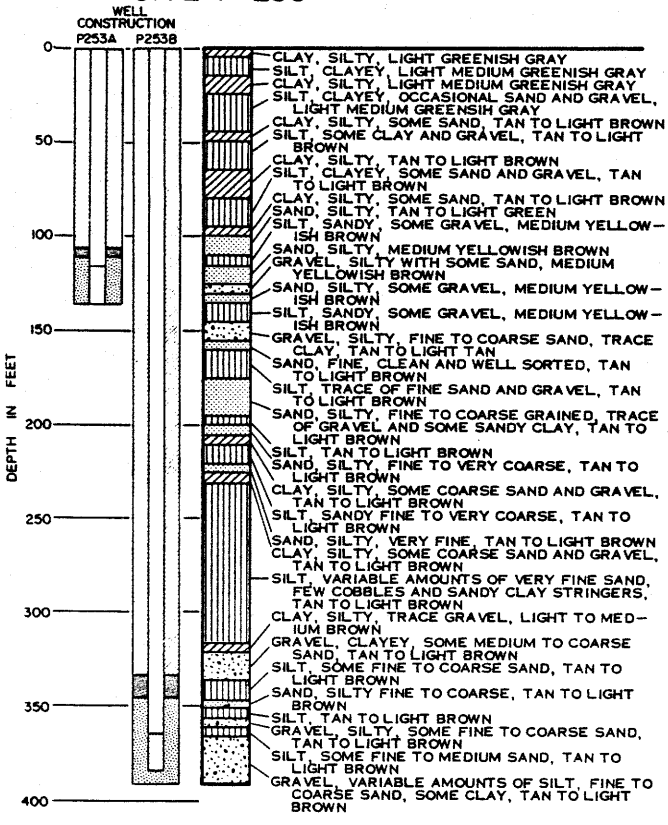
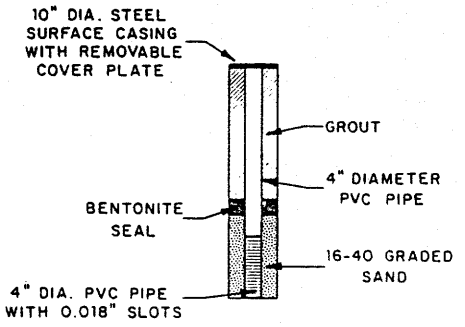


KEY

- CLAY
- SANDY CLAY
- SILT
- SAND
- GRAVEL
- VOLCANICS – RHYOLITE OR ANDESITE
- HORNBLENDE ANDESITE PORPHYRY
- TUFF
- AGGLOMERATE

KEY TO WELL CONSTRUCTION



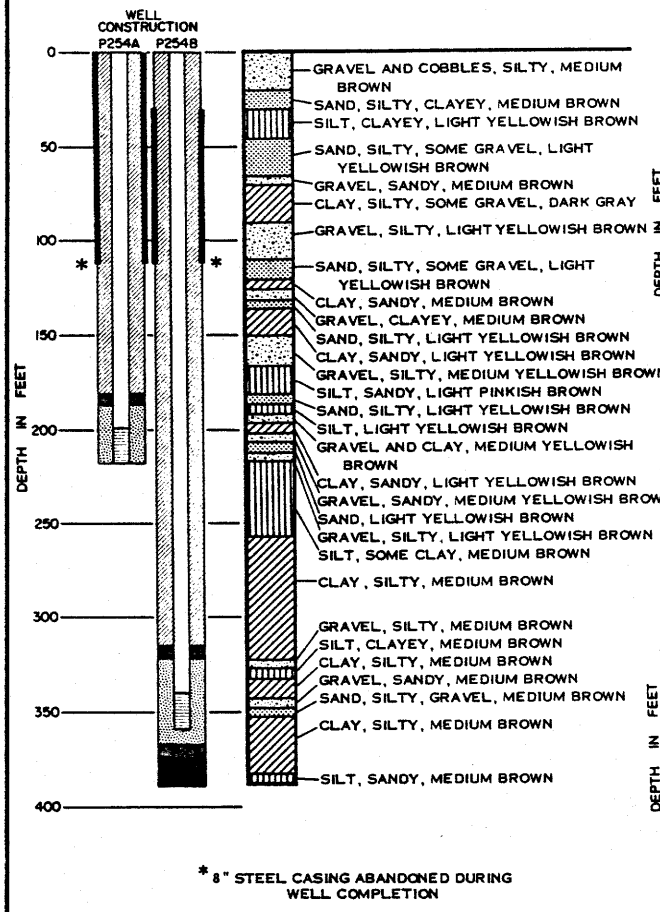
LOG OF BORINGS

Dames & Moore

PLATE B-2E

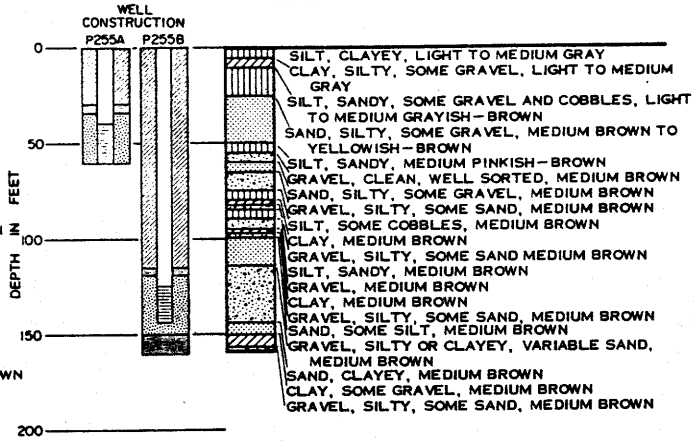
FILE ____ BY ____ DATE ____ CHECKED BY ____ DATE ____

SITE P 254



* 8" STEEL CASING ABANDONED DURING WELL COMPLETION

SITE P 255



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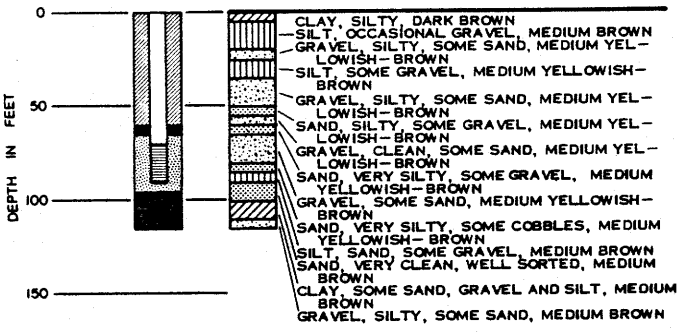

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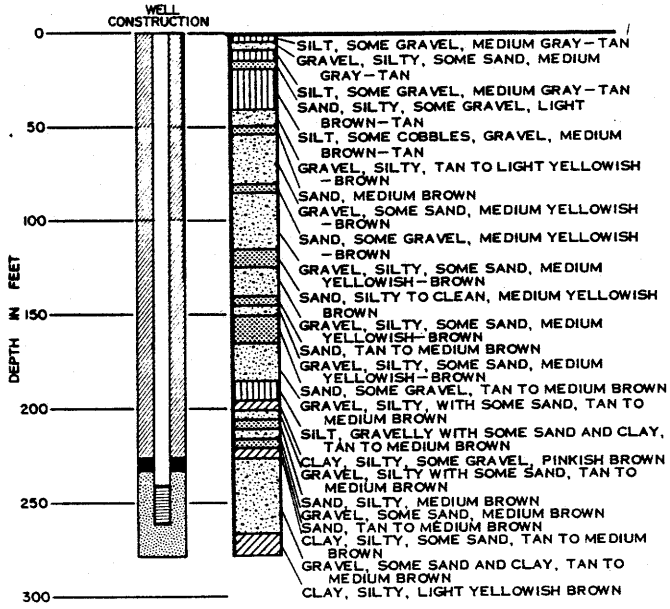
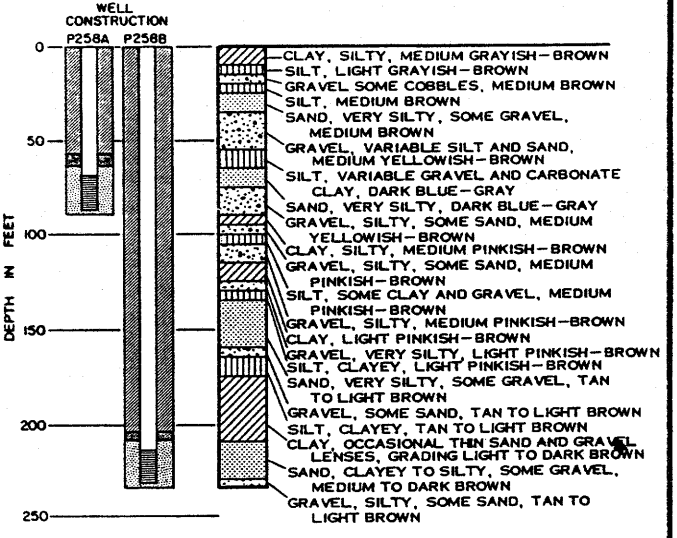


SITE P 258



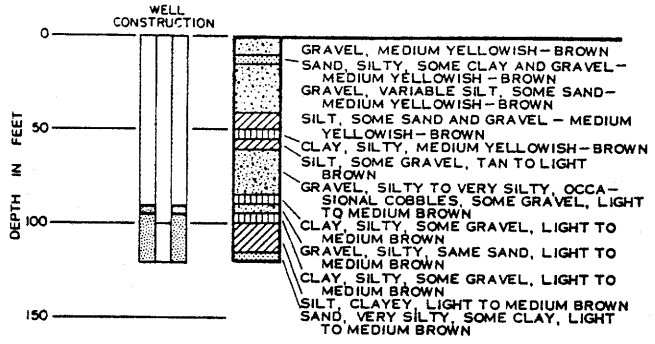
LOG OF BORINGS

Dames & Moore

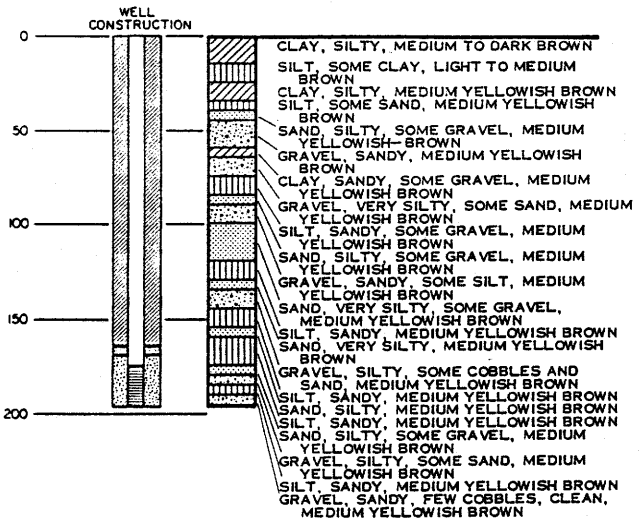
PLATE B-2F

FILE BY DATE CHECKED BY DATE

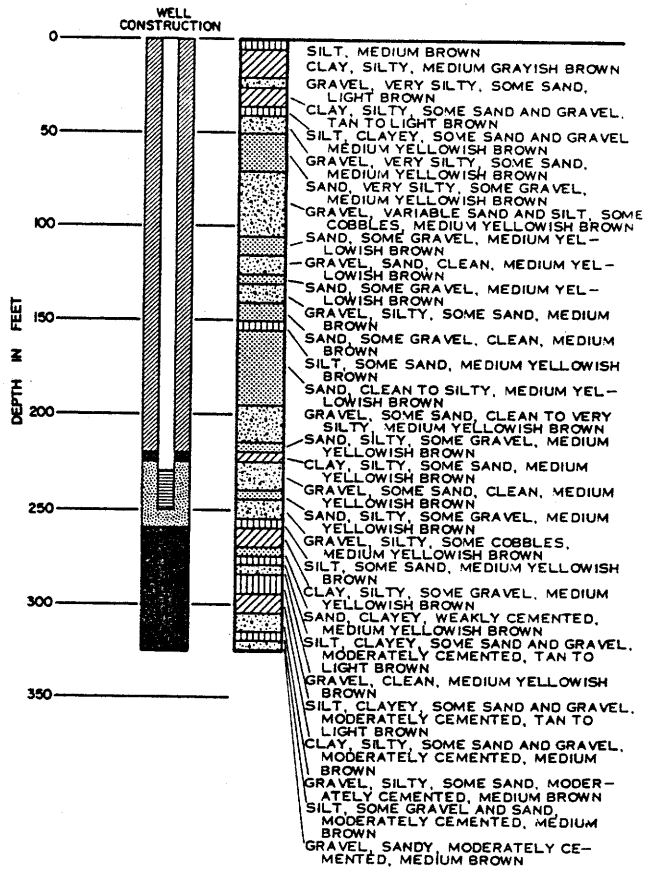
SITE P 261



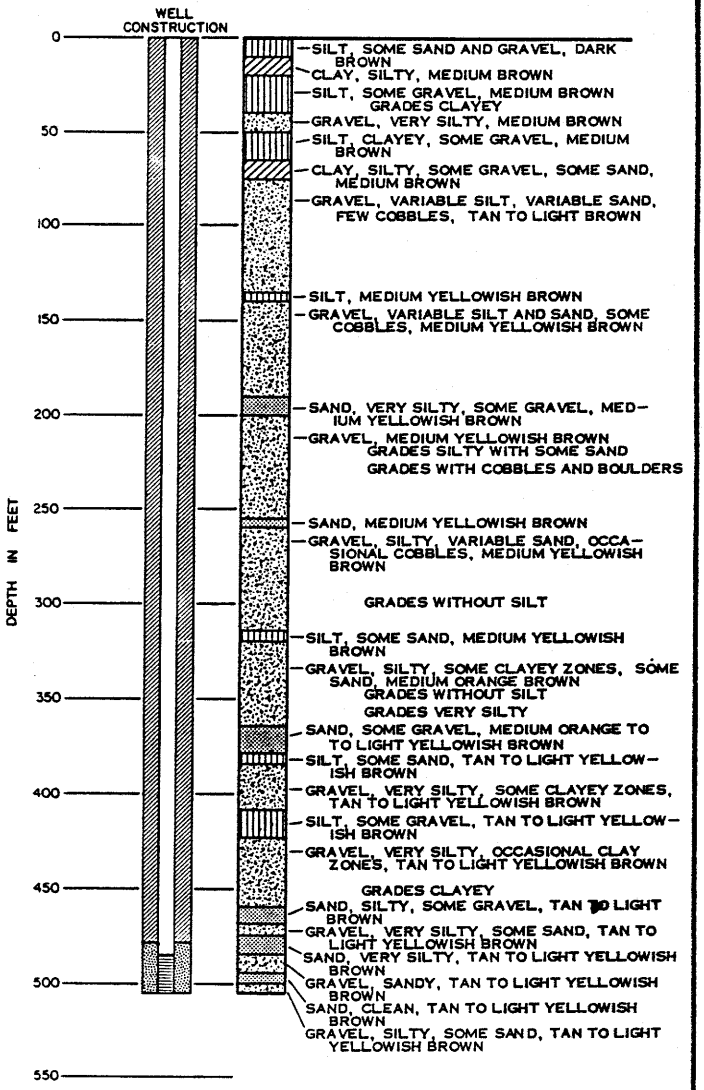
SITE P 262



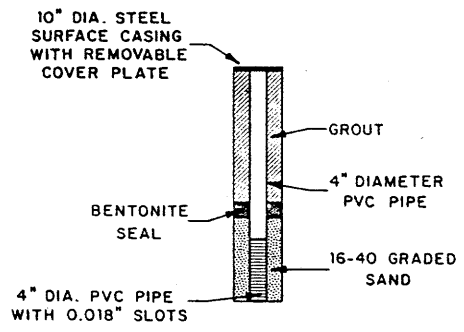
SITE P 263



SITE P 264



KEY TO WELL CONSTRUCTION



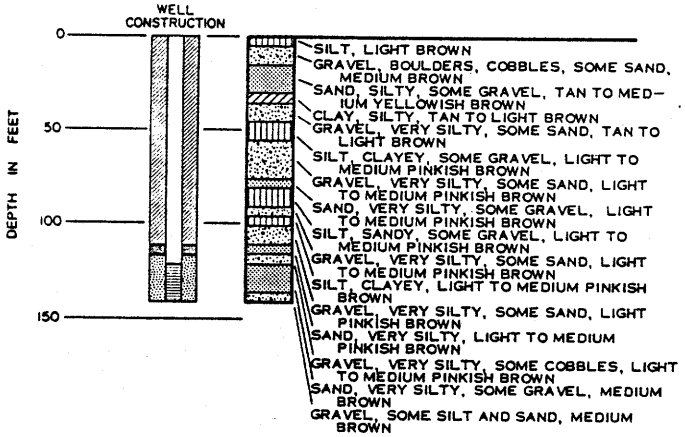
LOG OF BORINGS

Dames & Moore

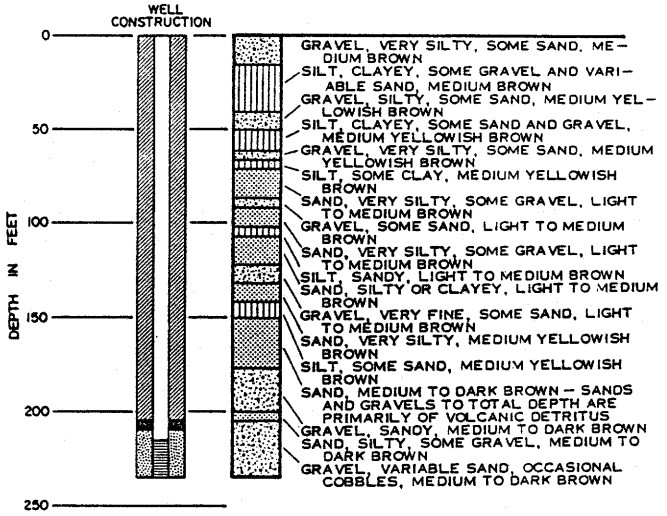
PLATE B-2G

FILE ____ BY ____ DATE ____ CHECKED BY ____ DATE ____

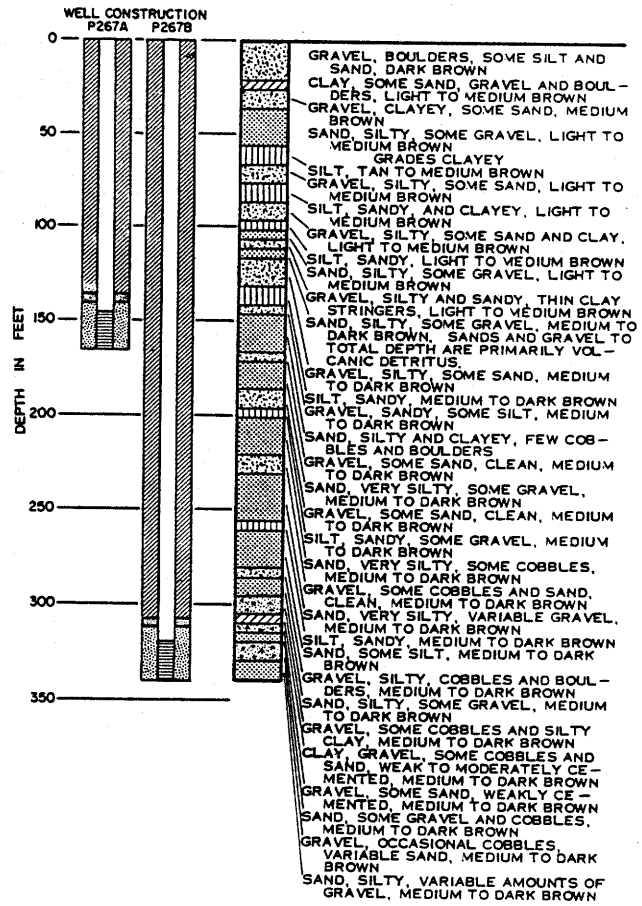
SITE P265



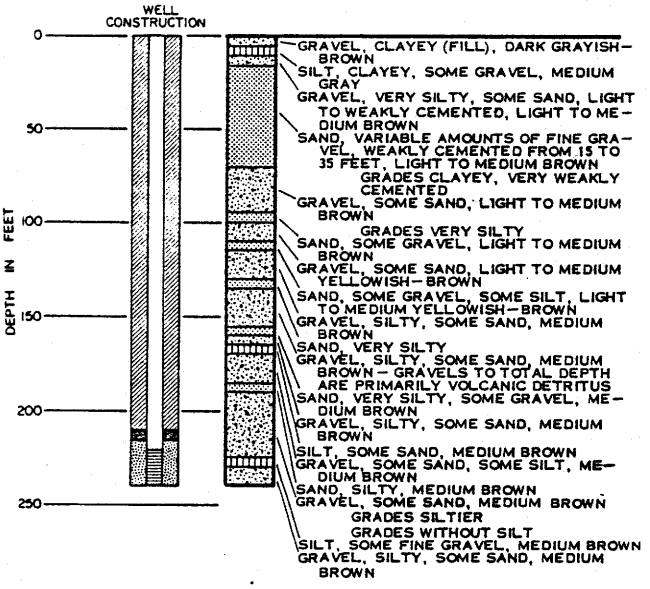
SITE P 266



SITE P 267



SITE P 268



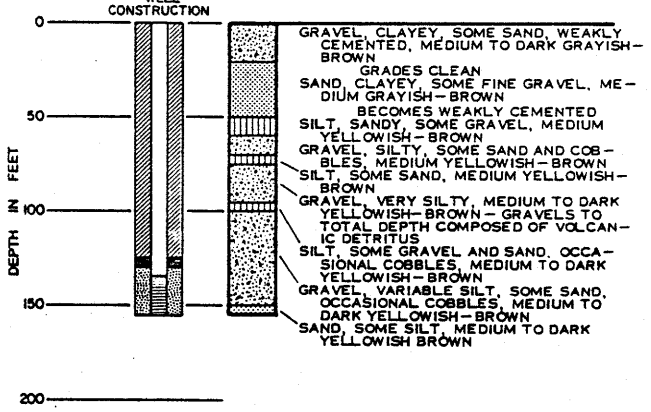
LOG OF BORINGS

Dames & Moore

PLATE B-2H

FILE BY DATE CHECKED BY DATE

SITE P 269



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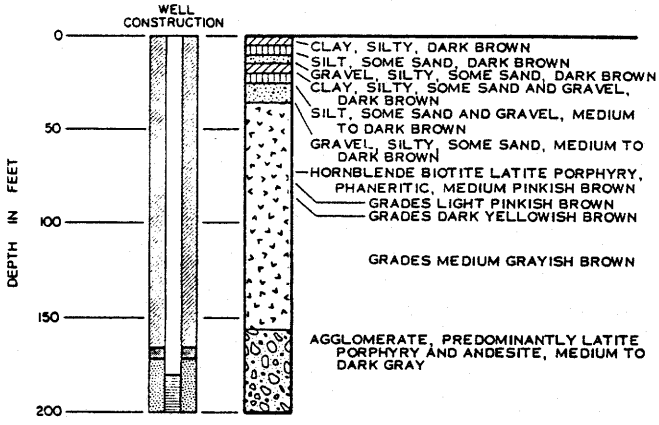
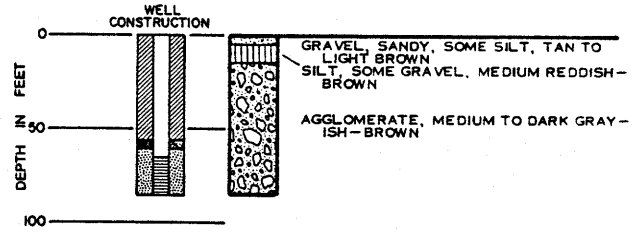
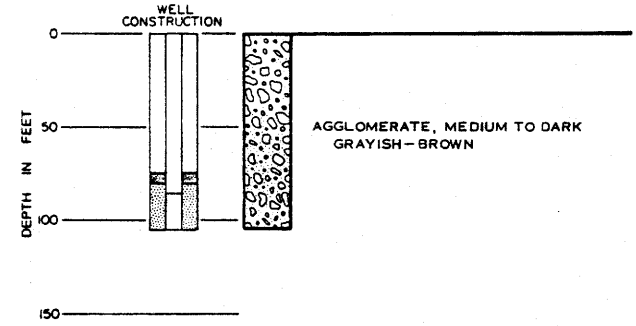


SITE P 271



SITE P 272



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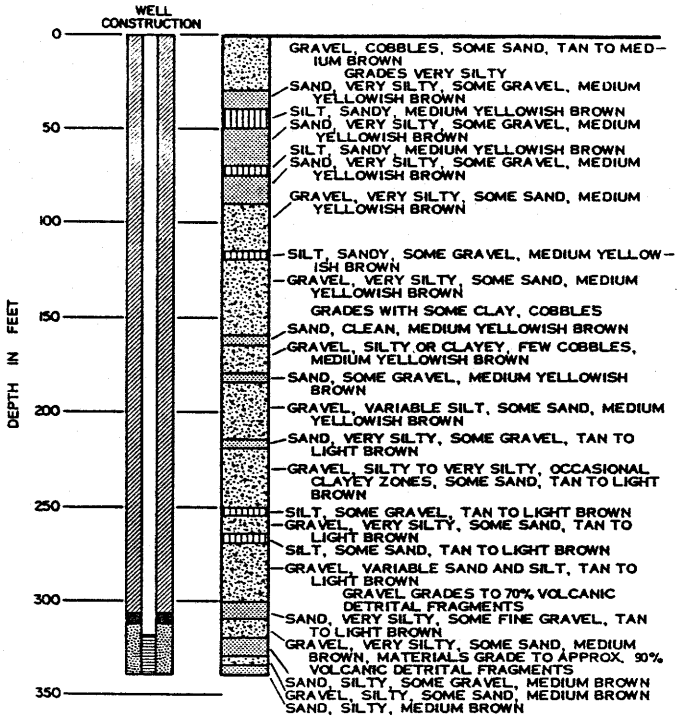
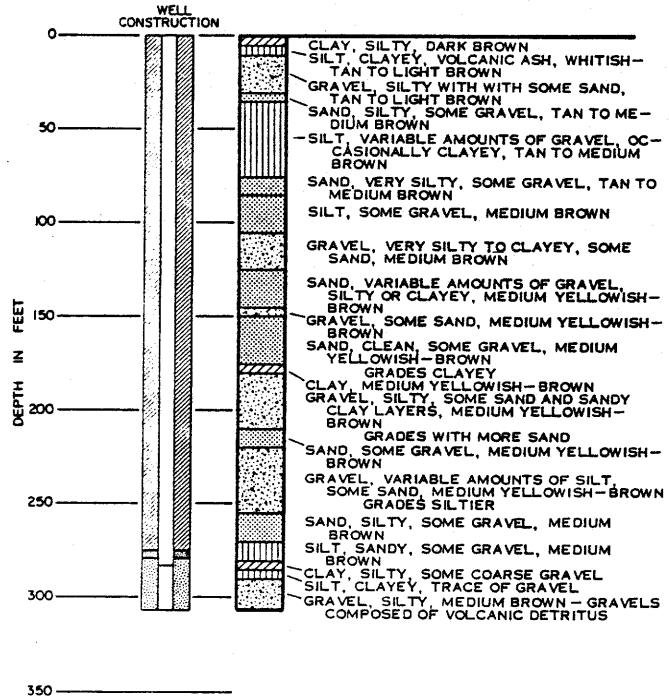


SITE P 274



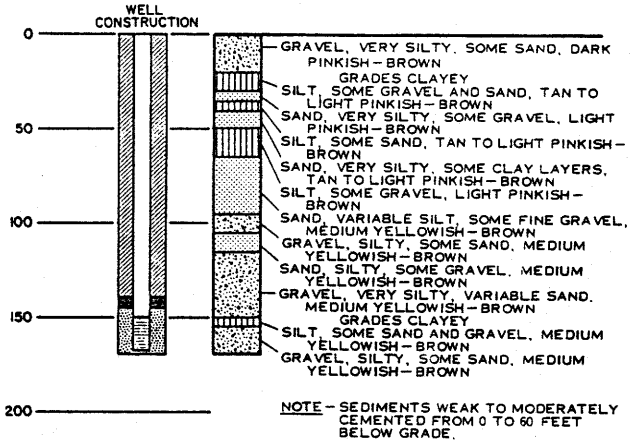
LOG OF BORINGS

Dames & Moore

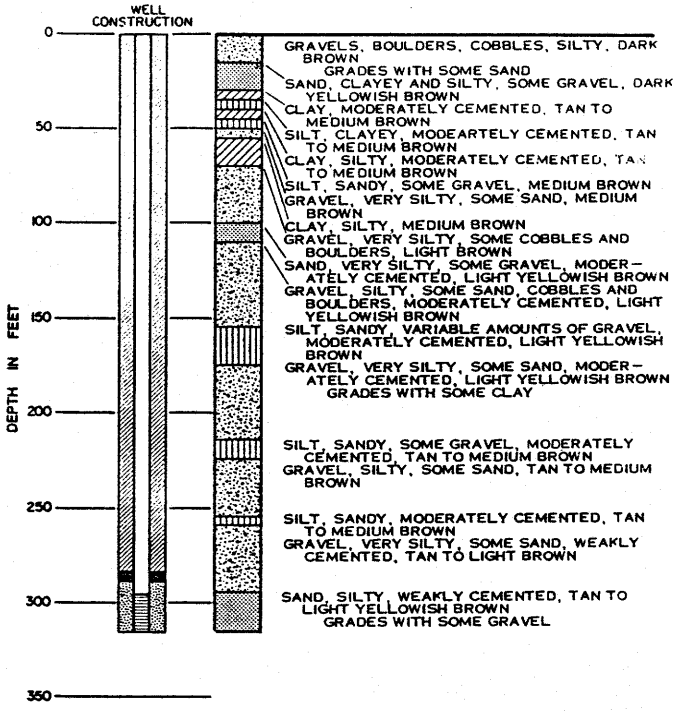
PLATE B-21

FILE ____ BY ____ DATE ____ CHECKED BY ____ DATE ____

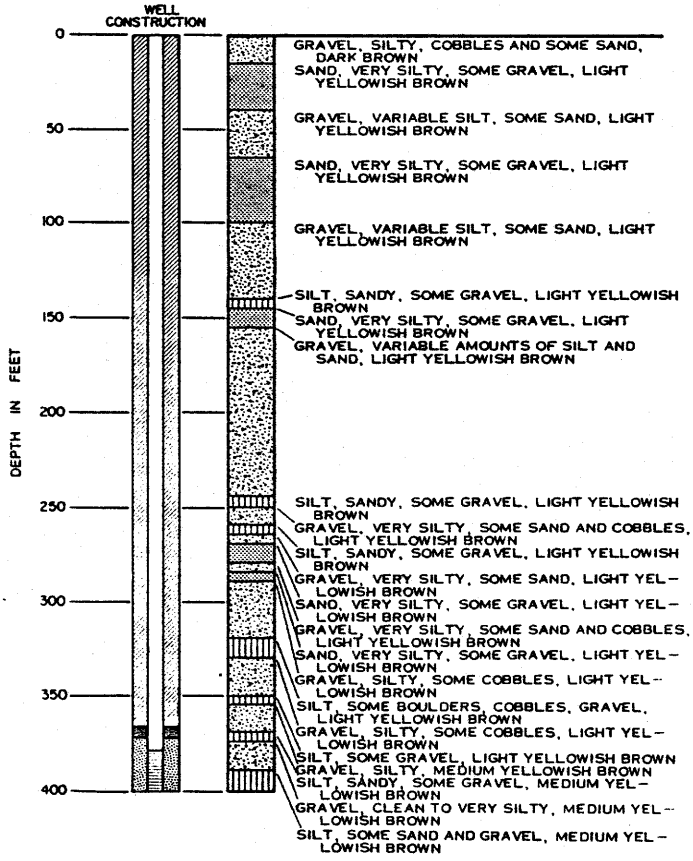
SITE P 275



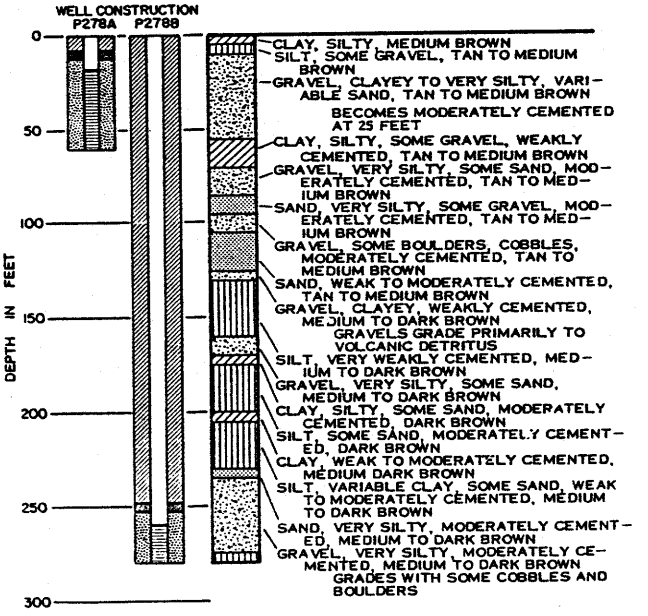
SITE P 276



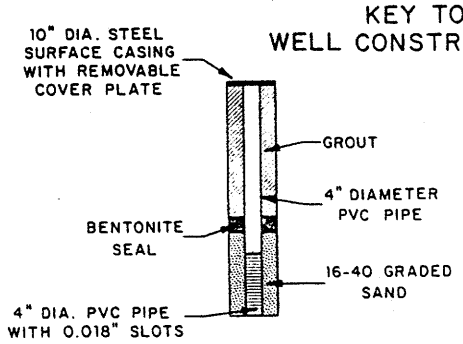
SITE P 277



SITE P 278



KEY TO WELL CONSTRUCTION



LOG OF BORINGS

Dames & Moore

PLATE B-2J

ADDENDUM

GEOLOGIC AND GEOPHYSICAL LOGS

List of Contents

SUMMARY OF PERMANENT WELL ABANDONMENTS

SUMMARY OF PERMANENT WELL ABANDONMENTS

Well K122

Abandonment for well K122 began on October 9, 1986. Access to the well was difficult due to its location within the bottom of Keystone Gulch. The casing, which consisted of 4½-inch fiberglass to 71 feet, was perforated with blasting caps attached to a centralizing unit for every 2 feet to 20 feet below ground surface. Approximately 1.16 cubic yards of grout were pumped from a distance of 160 feet away from the well through 2-inch PVC pipe, which was connected to tremie pipe lowered to the bottom of the well. As the grout was introduced, the tremie pipe was continually withdrawn. The surface casing was cut off and removed from the site on October 10, 1986.

Well P234

Abandonment for well P234 began on September 19, 1986. The casing consisted of 6-inch PVC to 90.2 feet below ground level. Casing was perforated to 80 feet and approximately 0.77 cubic yards of grout was introduced through tremie pipe as it was being withdrawn. Surface casing was cut off below ground level and removed from the site on September 21, 1986.

Well P198

Abandonment activity for P198 began on November 4, 1986. The casing, which consisted of 4½-inch fiberglass to 510 feet below ground level, was perforated every 5 feet using knotted 50-grain Prima cord on PVC centralizers, and detonated with tremie pipe sitting on bottom. Approximately 5.53 cubic yards of grout were pumped as the tremie pipe was withdrawn. The casing was cut off and the grout topped off on November 13, 1986.

Well P199

Abandonment activity for well P199 commenced on November 10, 1986. The casing, which consisted of 4½-inch fiberglass to 565 feet below ground level, was perforated every 5 feet using knotted 50-grain Prima cord on PVC centralizers, and detonated with tremie pipe sitting on bottom. Approximately 6.01 cubic yards of grout were pumped as the tremie pipe was withdrawn. Work was completed on November 13, 1986.

Well W337

Abandonment of well W337 began on December 1, 1986. The casing, which consisted of 4-inch steel, was perforated using shot perforators every 5 feet between the depths of 150 to 190 feet below ground surface. Approximately 2.93 cubic yards of grout were tremied into place to the surface. Work was completed on December 3, 1986.

12/19/86
JSB

PERMANENT WELL ABANDONMENT SUMMARY

Well Designation	Well Diameter (inches)	Well Depth (feet)	Volume of Grout Used (cubic yards)
P234	6.0	90.2	0.77
K122	4.5	71.0	1.16
W337	4.0	215.0*	2.93
P198	4.5	510.0	5.53
P199	4.5	565.0	6.01

* Depth estimated; pump blocked casing @ 206 feet below ground level.

GEOLOGIC LOGS AND WELL CONSTRUCTION DATA

SITE # P241A

GEOLOGIC LOG: P241A

Depths (in feet) from	to	
0.0	5.0	Gravel, some fine to very coarse sand, dark gray brown.
5.0	10.0	Grades siltier with a trace of clay.
10.0	15.0	Sand, silty fine to very coarse with some gravel, light gray brown to tan.
15.0	25.0	Gravel, silty with fine to very coarse sand, light brown to tan.
25.0	35.0	Grades siltier.
35.0	40.0	Gravel, clayey with fine to very coarse sand, light brown to tan.
40.0	45.0	Gravel, silty with fine to very coarse sand, some cobbles, light brown to tan.
45.0	50.0	Grades siltier with a trace of clay.
50.0	55.0	Gravel, silty with some fine to very coarse sand, light brown to tan.
55.0	60.0	Grades clayey.
60.0	65.0	Clay, silty, some fine gravel, trace of very fine to medium grained sand, light brown to tan.
65.0	75.0	Grades with more gravel and a few cobbles, light brown to tan.
75.0	85.0	Grades with more fine to coarse sand.
85.0	100.0	Clay, silty, some gravel and trace of fine sand, medium yellow brown.
100.0	105.0	Gravel, silty, few cobbles, trace of fine sand, medium yellow brown.
105.0	110.0	Clay, silty, some gravel, trace of coarse sand, medium yellow brown.
110.0	115.0	Gravel, clayey, some very fine to coarse sand, medium brown.
115.0	120.0	Grades with more fine to very coarse sand.
120.0	125.0	Sand, silty fine to very coarse, some gravel, trace of clay, medium yellow brown.
125.0	130.0	Grades clayey with more fine gravel.
130.0	135.0	Gravel, fine, silty with some medium to coarse sand, medium yellow brown.
135.0	140.0	Silt, some gravel, some very fine to coarse sand, medium yellow brown.
140.0	150.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
150.0	155.0	Grades with more medium to coarse sand.
155.0	160.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
160.0	165.0	Gravel, silty, some fine to very coarse sand, trace of cobbles, medium yellow brown.
165.0	170.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
170.0	175.0	Gravel, silty fine to very coarse sand, medium yellow brown.
175.0	180.0	Grades with a trace of sandy clay.
180.0	185.0	Grades without sandy clay.
185.0	190.0	Grades with some cobbles.
190.0	195.0	Sand, silty fine to very coarse with some gravel, medium yellow brown.
195.0	200.0	Grades with more gravel.
200.0	215.0	Gravel, silty with some fine to very coarse sand, medium yellow brown.

215.0	225.0	Grades siltier with more fine to very coarse sand. medium yellow brown.
225.0	230.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
230.0	235.0	Grades with more gravel.
235.0	245.0	Gravel, silty with some fine to coarse sand, trace of clay, medium yellow brown.
245.0	255.0	Gravel, grades coarser without clay.
255.0	265.0	Grades with some cobbles.
265.0	270.0	Grades with more fine to coarse sand.
270.0	275.0	Gravel, silty, fine to very coarse sand, few cobbles, medium yellow brown.
275.0	295.0	Grades without cobbles.
295.0	300.0	Grades siltier.
300.0	305.0	Gravel, some fine to very coarse sand, medium yellow brown.
305.0	310.0	Sand, medium to very coarse, trace of silt and gravel, medium to dark brown.
310.0	325.0	Grades siltier with more gravel, medium yellow brown.
325.0	330.0	Gravel, silty with fine to very coarse sand, medium yellow brown.

REMARKS: Boring P241A had 8 inch casing advanced to total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P241A

Location: Kennecott Coordinate; N. 12475.323 E. 32336.418
Township & Range Coordinates; NW 1/4 NW 1/4 NW 1/4 of Sec. 23 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5043.80 ft. Top of casing; 5046.35 ft.
Completion Date: 5/17/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 330.5 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 310.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 310.0 to 330.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 303.5 ft. to 330.5 feet.
Bentonite Seal: Depth; from 298.0 to 303.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 298.0 ft.

ADDITIONAL DATA:

Static water level: Date; 6/03/86
Depth; 276.31 feet below top of casing
Elevation; 4770.04 ft.
Chemistry: Date; 5/29/86
pH; 7.73 Sp. cond. 3600 micromhos/cm.
temperature; 20.3 degrees C.
COMMENTS: Complete chemical analyses not yet available.

SITE # P241C

GEOLOGIC LOG: P241C

Depths (in feet) from	to	
0.0	5.0	Silt, clayey, medium gray brown.
5.0	15.0	Grades with more clay.
15.0	20.0	Clay, silty, trace of gravel, trace of coarse sand, medium brown.
20.0	25.0	Clay, silty with some gravel, trace of fine to coarse sand, tan to light brown.
25.0	30.0	Gravel with some fine to coarse sand, trace of clay, tan to light brown.
30.0	35.0	Grades with more clay.
35.0	40.0	Gravel, clayey with fine to very coarse sand, tan creme.
40.0	45.0	Gravel, silty with fine to coarse sand, light to medium yellow brown.
45.0	55.0	Gravel, sandy fine to coarse, some silt, trace of clay, medium yellow brown.
55.0	60.0	Gravel, silty fine to very coarse sand, medium yellow brown.
60.0	80.0	Grades siltier.
80.0	85.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
85.0	90.0	Gravel, some fine to very coarse sand, medium yellow brown.
90.0	100.0	Gravel, silty fine to very coarse sand, some clay, medium yellow brown.
100.0	105.0	Grades less clay.
105.0	110.0	Silt, sandy fine to medium grained, some gravel, medium yellow brown.
110.0	115.0	Grades with some clay.
115.0	120.0	Gravel, silty with fine to coarse sand, some clay, medium yellow brown.
120.0	125.0	Grades with more clay.
125.0	130.0	Gravel, silty with fine to very coarse sand, medium yellow brown.
130.0	135.0	Cobbles, boulders, gravel, silty with some fine to very coarse sand, medium yellow brown.
135.0	145.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
145.0	150.0	Clay, silty and sandy, fine to very coarse, some gravel, medium yellow brown.
150.0	155.0	Sand, silty medium to coarse, trace of clay, medium yellow brown.
155.0	160.0	Grades without clay, with more gravel.
160.0	165.0	Grades siltier.
165.0	170.0	Gravel, silty with fine to very coarse sand, medium yellow brown.
170.0	175.0	Gravel, some cobbles, trace of fine to very coarse sand, medium yellow brown.
175.0	180.0	Gravel, silty with fine to very coarse sand, medium yellow brown.
180.0	185.0	Grades with some cobbles.
185.0	190.0	Grades with some clay.
190.0	200.0	Grades without clay.
200.0	210.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
210.0	215.0	Grades with a trace of clay.
215.0	220.0	Grades without clay.

220.0	225.0	Silt, sandy medium to coarse, some gravel, medium yellow brown.
225.0	230.0	Gravel, silty, some cobbles and boulders, medium yellow brown.
230.0	235.0	Gravel, very silty, some fine to coarse sand, dark yellow brown.
235.0	240.0	Sand, fine to medium grained, very silty with some gravel and a trace of clay, medium yellow brown.
240.0	250.0	Sand, coarse to very coarse, clayey with some gravel, medium yellow brown.
250.0	255.0	Gravel, some medium to very coarse sand, clayey, medium yellow brown.
255.0	260.0	Sand, clayey, fine to very coarse, some gravel, medium yellow brown.
260.0	265.0	Grades with less gravel.
265.0	270.0	Grades with a few cobbles, weakly cemented.
270.0	280.0	Clay, silty, some fine to medium sand, trace of gravel, medium yellow brown.
280.0	290.0	Clay, silty and sandy, fine to medium grained, medium yellow brown.
290.0	295.0	Grades with a trace of gravel.
295.0	300.0	Gravel, silty and clayey with some fine to coarse sand, medium yellow brown.
300.0	305.0	Sand, very fine to fine, medium yellow brown.
305.0	315.0	Gravel, silty with some fine to coarse sand, medium yellow brown.
315.0	320.0	Gravel, fine, clean and well sorted, medium yellow brown.
320.0	325.0	Sand, coarse to very coarse, silty with a trace of gravel, medium yellow brown.
325.0	330.0	Gravel, silty with a trace of medium sand, medium yellow brown.
330.0	335.0	Sand, medium to coarse, some silt, trace of gr[illegible], medium yellow brown.
335.0	340.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
340.0	345.0	Gravel, fine, well sorted, some very coarse sand, medium yellow brown.
345.0	350.0	Grades with some cobbles.
350.0	355.0	Gravel, silty, some fine to very coarse sand, trace of clay, medium yellow brown.
355.0	360.0	Grades siltier.
360.0	370.0	Gravel, fine, some silty fine to very coarse sand, medium yellow brown.
370.0	380.0	Silt, some gravel, some fine to coarse sand, medium yellow brown.
380.0	385.0	Grades with trace of gravel.
385.0	390.0	Silt, some gravel, trace of fine to very coarse sand, medium yellow brown.
390.0	395.0	Gravel, silty with fine to medium sand, medium yellow brown.
395.0	400.0	Grades with more fine to coarse sand.
400.0	405.0	Sand, medium to coarse, clean and well sorted, medium brown.
405.0	410.0	Silt, some fine to coarse sand, trace of gravel, medium brown.
410.0	415.0	Sand, silty, medium to coarse, some gravel, medium brown.
415.0	425.0	Sand, very silty, medium to coarse, trace of gravel, medium to dark brown.
425.0	430.0	Sand, fine to medium grained, silty, medium to dark brown.
430.0	440.0	Grades coarser.

REMARKS: Boring P241C had 10 inch casing advanced to 277.0 feet during drilling and 8 inch casing advanced to total depth.

WELL CONSTRUCTION DATA:

WELL P241C

Location: Kennecott Coordinate; N. 9803..666 E. 32426.958
Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 23 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5010.20 ft. Top of casing; 5013.09 ft.
Completion Date: 7/14/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 11.0 inch, Depth; 277.0 feet.
Diameter; 9.0 inch, Depth; 440.0 feet.
Grout Back: 410.0 to 440.0 ft. using coarse bentonite rock.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 385.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 385.0 to 405.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 378.0 ft. to 410.0 feet.
Bentonite Seal: Depth; from 373.0 to 378.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 373.0 ft.

ADDITIONAL DATA:

Static water level: Date; 8/21/86
Depth; 236.90 feet below top of casing
Elevation; 4777.00 ft.
Chemistry: Date; 7/14/86
pH; 7.11 Sp. cond. 1100 micromhos/cm.
temperature; 24.8 degrees C.

COMMENTS: Complete chemical analyses not yet available.

SITE # P241

GEOLOGIC LOG: P241C - MUD ROTARY TEST HOLE

Depths (in feet)

from	to	
0.0	5.0	Silt, some gravel, trace of fine sand, tan to light brown.
5.0	8.0	Grades with some clay, medium brown.
8.0	18.0	Gravel, silty, some coarse sand, tan to light brown.
18.0	23.0	Clay, silty with some gravel and cobbles, medium to dark brown.
23.0	32.0	Gravel, some cobbles, silty, some fine to very coarse sand, tan to light brown.
32.0	35.0	Gravel, very coarse, clean and well sorted.
35.0	42.0	Grades sandier, medium to coarse grained, light to medium brown.
42.0	45.0	Clay, silty.
45.0	72.0	Gravel, silty, varying amounts of fine to very coarse sand.
72.0	85.0	Gravel, very coarse, some sand.
85.0	90.0	Clay, silty.
90.0	98.0	Gravel, trace of coarse sand.
98.0	101.0	Clay, silty.
101.0	112.0	Gravel, silty with some cobbles.
112.0	115.0	Grades with some clay stringers.
115.0	124.0	Grades without clay.
124.0	127.0	Gravel, some clay.
127.0	140.0	Gravel, silty with some cobbles, some fine to ve coarse sand.
140.0	145.0	Grades without cobbles.
145.0	150.0	Grades with more sand.
150.0	165.0	Gravel, silty, some cobbles and fine to very coa sand.
165.0	175.0	Grades with more fine to very coarse sand.
175.0	180.0	Gravel, silty with some fine to very coarse sand few cobbles.
180.0	185.0	Gravel grades very fine.
185.0	190.0	Gravel grades with some fine to coarse sandy cla
190.0	195.0	Grades without clay.
195.0	200.0	Gravel, silty with fine to very coarse sand.
200.0	210.0	Gravel grades very fine with more fine to coarse sand.
210.0	217.0	Clay, sandy, medium yellow brown.
217.0	230.0	Gravel, some coarse sand.
230.0	235.0	Gravel, silty with fine to coarse sand.
235.0	240.0	Grades with more silty fine to coarse sand.
240.0	245.0	Grades with stringers of sandy clay.
245.0	250.0	Grades siltier.
250.0	260.0	Gravel, coarse with fine to very coarse sand.
260.0	265.0	Gravel, grades very fine.
265.0	270.0	Grades with stringers of sandy clay.
270.0	275.0	Sand, silty fine to very coarse with some grave and trace of sandy clay.
275.0	280.0	Grades without sandy clay.
280.0	285.0	Gravel, fine, silty, some fine to very coarse sand, trace of silty clay.
285.0	290.0	Clay, sandy.
290.0	295.0	Gravel, silty, some fine to very coarse sand.
295.0	300.0	Grades with some clay stringers.
300.0	305.0	Gravel, coarse and silty, some coarse sand.

305.0	310.0	Grades with more coarse sand and some silty clay, light to medium reddish brown.
310.0	315.0	Grades siltier.
315.0	320.0	Sand, silty fine to coarse , some gravel, trace of clay.
320.0	325.0	Grades with more clay.
325.0	330.0	Grades with more coarse gravel.
330.0	333.0	Clay, sandy.
333.0	340.0	Sand, silty fine to very coarse grained, trace of gravel.
340.0	345.0	Grades with some sandy clay stringers.
345.0	350.0	Sand, silty fine to coarse grained, trace of gravel.
350.0	360.0	Sand, medium to coarse grained, clayey.
360.0	370.0	Grades with some very coarse sand, less clay.
370.0	385.0	Sand, coarse to very coarse grained, clayey.
385.0	400.0	Sand, fine to very coarse, trace of gravel, some occasional sandy clay stringers.
400.0	405.0	Grades with trace of bentonite clay.
405.0	410.0	Sand, fine to coarse, clayey, trace of gravel.
410.0	415.0	Grades without clay.
415.0	420.0	Grades siltier.
420.0	425.0	Sand, fine to very coarse, trace of gravel, trace bentonite clay.
425.0	430.0	Sand, fine to very coarse, clayey, trace of gravel.
430.0	440.0	Grades siltier.
440.0	445.0	Sand, clayey, fine to very coarse, trace of gravel.
445.0	450.0	Grades with more fine gravel.
450.0	465.0	Grades with interbedded thin sandy clay stringers.
465.0	475.0	Sand, clayey, fine to very coarse, trace of fine gravel.
475.0	480.0	Sand, silty fine to very coarse, trace of gravel occasional thin sandy clay stringers.
480.0	500.0	Grades with more clay.
500.0	505.0	Sand, silty fine to very coarse, trace of sandy clay.
505.0	510.0	Grades clayey with a trace of fine gravel.
510.0	515.0	Grades silty.
515.0	520.0	Grades with some thin sandy clay stringers.
520.0	525.0	Grades with more clay.
525.0	530.0	Gravel, silty with fine to very coarse sand.
530.0	535.0	Gravel, clean and well sorted, occasional bentonite layers.
535.0	540.0	Grades with more silty fine to very coarse sand.
540.0	550.0	Sand, silty fine to very coarse, some fine gravel.
550.0	555.0	Grades with some thin sandy clay stringers.
555.0	560.0	Grades with more clay, medium brown.
560.0	565.0	Grades less silty.
565.0	570.0	Sand, silty fine to very coarse, some very fine gravel, occasional thin clay stringers.
570.0	575.0	Sand grades finer, clayey.
575.0	590.0	Sand, clayey, fine to coarse, trace of fine gravel.
590.0	600.0	Grades less clay.
600.0	605.0	Sand, silty fine to very coarse, some very fine gravel.
605.0	615.0	Grades less silt, more clay.
615.0	620.0	Grades without gravel, with thin silty clay stringers.
620.0	625.0	Sand, silty fine to very coarse grained, some sandy clay.
625.0	640.0	Grades with a trace of gravel.
640.0	645.0	Gravel, very fine, silty with fine to very coars sand, thin clay stringers.

645.0	655.0	Sand, silty fine to very coarse, some fine gravel.
655.0	660.0	Grades with more coarse gravel.
660.0	665.0	Clay, silty and sandy.
665.0	700.0	Sand, clayey, fine to very coarse, some gravel.
700.0	705.0	Gravel, silty, some fine to very coarse sand.
705.0	710.0	Grades with some cobbles.
710.0	715.0	Grades clayey.
715.0	720.0	Grades with more sand, trace of clay.
720.0	730.0	Gravel, silty, some fine to very coarse sand, some silty clay stringers.
730.0	735.0	Grades siltier.
735.0	745.0	Grades with some silty clay.
745.0	750.0	Gravel, silty fine to very coarse sand, some clay.
750.0	755.0	Gravel, clayey, some fine to coarse sand.
755.0	760.0	Grades with more silt, less clay.
760.0	765.0	Sand, silty fine to very coarse, trace of gravel.
765.0	770.0	Grades siltier.
770.0	775.0	Gravel, some silty fine to very coarse sand.
775.0	780.0	Grades with a trace of sandy clay.
780.0	790.0	Sand, clayey and very coarse, trace of gravel.
790.0	800.0	Silt, some very fine to very coarse gravel.
800.0	805.0	Grades with trace of fine gravel, some clay.
805.0	820.0	Sand, clayey, fine to medium grained.
820.0	825.0	Grades coarser.
825.0	830.0	Grades with more clay.
830.0	835.0	Grades with some fine gravel, clayey.
835.0	840.0	Grades with more gravel.
840.0	845.0	Gravel, clayey, some fine to very coarse sand.
845.0	850.0	Grades with some sandy clay stringers.
850.0	860.0	Sand, silty medium to coarse grained, some fine gravel, trace of sandy clay.
860.0	865.0	Grades siltier with some silty clay seams.
865.0	875.0	Sand, silty, some fine gravel.
875.0	885.0	Grades with some silty clay stringers.
885.0	890.0	Grades without clay.
890.0	895.0	Sand, silty fine to very coarse, some gravel, trace of clay.
895.0	900.0	Sand, medium to coarse grained, trace of bentonite clay.
900.0	905.0	Grades with some gravel, trace of clay.
905.0	925.0	Grades less gravel, clayey.
925.0	930.0	Sand, silty fine to very coarse, trace of clay.
930.0	940.0	Grades without clay.
940.0	950.0	Grades siltier with some clay.
950.0	955.0	Sand, silty fine to coarse, some gravel.
955.0	975.0	Grades clayey with a trace of gravel.
975.0	980.0	Gravel, silty fine to very coarse sand, trace of clay.
980.0	985.0	Grades clayey.
985.0	995.0	Grades sandier.
995.0	1000.0	Sand, silty fine to very coarse, some gravel, trace of bentonite clay.

REMARKS: Boring P241C had 10 inch casing advanced to 277.0 feet during drilling and 8 inch casing advanced to total depth.

WELL CONSTRUCTION DATA:

WELL P241C

Location: Kennecott Coordinate; N. 9803..666 E. 32426.958
Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 23 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5010.20 ft. Top of casing; 5013.09 ft.
Completion Date: 7/14/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 11.0 inch, Depth; 277.0 feet.
Diameter; 9.0 inch, Depth; 440.0 feet.
Grout Back: 410.0 to 440.0 ft. using coarse bentonite rock.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 385.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 385.0 to 405.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 378.0 ft. to 410.0 feet.
Bentonite Seal: Depth; from 373.0 to 378.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 373.0 ft.

ADDITIONAL DATA:

Static water level: Date; 8/21/86
Depth; 236.90 feet below top of casing
Elevation; 4777.00 ft.
Chemistry: Date; 7/14/86
pH; 7.11 Sp. cond. 1100 micromhos/cm.
temperature; 24.8 degrees C.

COMMENTS: Complete chemical analyses not yet available.

SITE # P242

GEOLOGIC LOG: P242

Depths (in feet) from	to	
0.0	5.0	Gravel and silty clay, medium to dark brown. Gravel is predominantly quartzite, white to gray, tan to orange brown with lesser amounts of andesite and andesite porphyry, medium to dark gray.
5.0	20.0	Grades sandier, light to medium brown.
20.0	30.0	Grades with more silt and less clay, medium brown.
30.0	65.0	Silty sand with gravel lenses. Gravel is predominantly quartzite, light tan to gray, white to orange brown, with occasional pieces of andesite porphyry.
65.0	80.0	Grades with more coarse sand and less gravel. Gravel is predominantly quartzite and lesser amounts of andesite ,and andesite porphyry.
80.0	90.0	Grades with more gravel.
90.0	115.0	Grades with more sand and less gravel lenses.
115.0	145.0	Silt, clayey with some sand and gravel, medium brown.
145.0	155.0	Silty sand and gravel. Gravel is predominantly quartzite.
155.0	175.0	Gravel, some sand, trace silt. Gravel is predominantly quartzite, with lesser amounts of andesite.
175.0	185.0	Sand, clayey with some gravel, light to medium brown.
185.0	190.0	Sand, silty with a trace of clay.
190.0	196.0	Grades with more gravel.

REMARKS: Boring P242 had 8 inch casing advanced to the total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P242

Location: Kennecott Coordinate; N. 17715.917 E. 21318.033
Township & Range Coordinates; NE 1/4 NE 1/4 NE 1/4 of Sec. 17 Twp. 3 S. Rge. 2 W. S.L.B.M.
Elevation: Ground; 5352.06 ft. Top of casing; 5354.58 ft.
Completion Date: 9/14/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 196.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 170.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 170.0 to 190.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 162.0 ft. to total depth.
Bentonite Seal: Depth; from 157.0 to 162.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 157.0 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 166.40 feet below top of casing
Elevation; 5188.18 ft.

Chemistry: Date; 9/30/85
pH; 4.78 Sp. cond. 7300 micromhos/cm.
Temperature; 14.6 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE # P243

GEOLOGIC LOG: P243

Depths (in feet) from	to	
0.0	32.0	Gravel, clayey silt and clayey sand, light to medium brown. Gravel predominantly quartzite with lesser amounts of andesite and andesite porphyry, light to dark gray. Occasional clay lenses.
32.0	33.0	Clay, light to medium brown.
33.0	87.0	Agglomerate, predominantly dark gray andesite; aphanitic. Lesser amounts of andesite porphyry, phenocrysts of hornblende, biotite and plagioclase. Matrix material is a non-welded tuff, clayey.

REMARKS: Boring P243 had 8 inch casing advanced to the total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P243

Location: Kennecott Coordinate; N. 6606.892 E. 19471.232
Township & Range Coordinates; NW 1/4 NW 1/4 NE 1/4 of Sec. 29 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5411.57 ft. Top of casing; 5414.18 ft.
Completion Date: 9/17/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 87.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 65.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 65.0 to 85.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 60.0 ft. to total depth.
Bentonite Seal: Depth; from 55.0 to 60.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 55.0 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 60.83 feet below top of casing
Elevation; 5353.35 ft.
Chemistry: Date; 9/30/85
pH; 7.39 Sp. cond. 900 micromhos/cm.
Temperature; 14.0 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE # P244

GEOLOGIC LOG: P244C

Depths (in feet)

from	to	
0.0	10.0	Gravel, silty, some clay, light yellow brown. Gravel predominantly quartzite, light gray to white to orange brown. Trace volcanic gravels.
10.0	20.0	Grades with less clay, light tan to brown.
20.0	35.0	Grades with more fine to coarse sand.
35.0	40.0	Clay, silty with some gravel, trace sand; light to medium brown.
40.0	55.0	Gravel, grades with silty sand, fine to coarse with some clay; gravel predominantly quartzite, white to tan.
55.0	92.0	Rhyolite, dark brown red to maroon, porphyritic. Phenocrysts of hornblende, biotite, alkali feldspar, quartz.
92.0	98.0	Hornblende andesite porphyry - dark gray to black ; phenocrysts of hornblende, plagioclase, biotite, magnetite. Aphanitic groundmass.
98.0	134.0	Agglomerate - predominantly hornblende andesite porphyry with lesser amounts of rhyolite porphyry and andesite. Becomes more tuffaceous @ 130 to 134 feet, medium gray brown.

REMARKS:

Well P244B contact between Tertiary gravels and the rhyolite i at 52.0 feet. The contact between the Tertiary gravels and the rhyolite in boring P244A is located at 57.0 feet.

WELL #P244C

Location: Kennecott Coordinate; N. 2285.252 E. 16110.01
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 30 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5683.48 ft. Top of casing; 5685.94 ft.
Completion Date: 9/26/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 134.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 113.5 ft. and
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 113.5 ft. to 133.5 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 106.0 ft. to total depth.
Bentonite Seal: Depth; from 101.0 to 106.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 101.0 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 48.15 feet below top of casing
Elevation; 5637.79 ft.

Chemistry: Date; 9/30/85
pH; 7.47 Sp. cond. 2700 micromhos/cm.
Temperature; 15.3 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

1

SITE #P244

WELL #P244A
Location: Kennecott Coordinate; N. 2266.325 E. 16139.443
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4
of Sec. 30 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5680.74 ft. Top of casing; 5683.33 ft.
Completion Date: 9/23/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool.
Drilling Fluid: Water.
Boring: Diameter; 9.0 in. Depth; 57.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 45.0 ft. and
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 45.0 to 55.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 39.0 ft. to total depth.
Bentonite Seal: Depth; from 34.0 to 39.0 ft.
Grout Seal: Type; Neat cement with 4% Bentonite.
Depth; from 0 to 34.0 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 47.80 feet below top of casing
Elevation; 5635.53 ft.
Chemistry: Date; 9/30/85
pH; 4.46 Sp. cond. 14,000 micromhos/cm.
Temperature; 14.0 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

1

WELL CONSTRUCTION DATA:

WELL# P244B
Location: Kennecott Coordinate; N. 2278.058 E. 16123.475
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4
of Sec. 30 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5682.36 ft. Top of casing; 5685.00 ft.
Completion Date: 9/20/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 82.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 70.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 70.0 to 80.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 64.0 ft. to total depth.
Bentonite Seal: Depth; from 59.0 to 64.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite

Depth; from 0 to 59.0 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 49.52 feet below top of casing
Elevation; 5635.48 ft.

Chemistry: Date; 9/30/85
pH; 7.25 Sp. cond. 2800 micromhos/cm.
Temperature; 13.7 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE P245

GEOLOGIC LOG: P245

Depths (in feet) from	to	
0.0	12.0	Clay, some silt, trace of gravel, medium to dark brown, some silt ; gravel is andesite, medium to dark gray. Probably fill material.
12.0	20.0	Tuff, andesitic, light gray, non-welded, very fine-grained to vitrophyric.
20.0	30.0	Agglomerate, predominantly including pieces of andesite, dark gray, aphanitic; with lesser amounts of latite, light to medium gray, porphyritic.
30.0	45.0	Agglomerate, grades with a few pieces of rhyolite, medium to dark red, porphyritic.
45.0	55.0	Agglomerate, predominantly includes andesite porphyry, medium to dark gray and lesser amounts hornblende andesite porphyry.
55.0	70.0	Tuff, light gray, non-welded and porphyritic interbedded with agglomerate.
70.0	105.0	Agglomerate, predominantly andesite porphyry, light to medium gray, with lesser amounts of hornblende andesite porphyry.
105.0	120.0	Andesite porphyry, medium to dark gray to purplish, aphanitic groundmass. Phenocrysts are plagioclase, with few hornblende and biotite altered to chlorite.
120.0	140.0	Hornblende andesite porphyry ; alternating greenish-gray to grayish-purple; porphyritic, aphanitic groundmass. Phenocrysts predominantly hornblende, with approximately 20% of rock altered to chlorite.

REMARKS: Boring P245 had 8 inch casing advanced to 18 feet during drilling.

WELL CONSTRUCTION DATA:

WELL P245

Location: Kennecott Coordinate; N. 10370.314 E. 16090.636
Township & Range Coordinates; SE 1/4 SE 1/4 NE 1/4 of Sec. 19 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5544.19 ft. Top of casing; 5546.62 ft.
Completion Date: 9/16/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Air rotary
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 140.5 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 120 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 120 to 140 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 113 ft. to total depth.
Bentonite Seal: Depth; from 108 to 113 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite

Depth; from 0 to 108 ft.

ADDITIONAL DATA:

Static water level: Date; 9/30/85
Depth; 62.50 feet below top of casing
Elevation; 5484.12 ft.

Chemistry: Date; 9/30/85
pH; 6.74 Sp. cond. 1800 micromhos/cm.
Temperature; 14.5 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE # P246

GEOLOGIC LOG: P246

Depths (in feet) from	to	
0.0	7.0	Gravel, silty and sandy; gravel is predominantly quartzite, with lesser amounts of andesite and andesite porphyry, medium to dark gray.
7.0	10.0	Sand, fine to medium grained with some gravel, light to medium brown.
10.0	35.0	Gravel, sandy, trace of silt. Gravel is predominantly quartzite, light tan to gray, white to orange brown, with occasional pieces of andesite porphyry.
35.0	40.0	Grades with less silty sand.
40.0	45.0	Grades sandier, medium to coarse grained, light to medium brown.
45.0	70.0	Gravel and some silty sand. Gravel is predominantly quartzite with a slightly increasing amount of andesite porphyry gravel, dark gray.
70.0	72.0	Sand, fine to medium grained, light to medium-brown. Gravel is predominantly quartzite with lesser amounts of andesite.
72.0	75.0	Clay, silty, light brown.
75.0	110.0	Gravel and some silty sand. Gravel is predominantly quartzite with lesser amounts of andesite and andesite porphyry, light to medium brown.
110.0	130.0	Gravel and sand, with thin lenses of silty fine sand, light to medium brown.
130.0	145.0	Grades with less silty fine sand; weakly cemented.
145.0	165.0	Gravel, predominantly quartzite, white to tan with trace of andesite porphyry. Trace fine to coarse silty sand, occasionly moderately cemented.
165.0	175.0	Gravel, fine to coarse sand and silt with some silty clay seams, medium brown. Gravel is predominantly quartzite, white to tan with lesser amounts of andesite and sandy limestone.
175.0	187.0	Grades without clay.
187.0	189.0	Clay, silty, medium to dark brown.
189.0	196.0	Sand, fine to coarse, silty with gravel and some silty clay. Gravel is quartzite, white to medium gray.
196.0	208.0	Sand, medium grained with a trace of gravel. Sand is predominantly magnetite, dark gray to black.
208.0	210.0	Grades with some gravel.
210.0	224.0	Sand, fine to coarse with a trace of gravel. Gravel is weathered agglomerate with pieces of light to medium gray to light orange andesite porphyry with lesser amounts of andesite porphyry.
224.0	238.0	Agglomerate, light to medium gray with pieces of andesite porphyry, light to medium gray.
238.0	248.0	Sand, medium to dark gray with few agglomerate pieces. Sand most likely derived from agglomerate.
248.0	260.0	Grades very fine grained.

REMARKS: Boring P246 had casing advanced to 217.5 foot depth during drilling.
Well yields very little water and pH has been affected by residual water from grouting back boring for screen placement.

WELL CONSTRUCTION DATA:

WELL P246

Location: Kennecott Coordinate; N. 14267.275 E. 18113.754
Township & Range Coordinates; SW 1/4 NE 1/4 SW 1/4
of Sec. 17 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5500.12 ft. Top of casing; 5502.79 ft.
Completion Date: 10/14/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Air rotary
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 260.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 205.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 205.0 to 225.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 196.0 ft. to 230.5 feet.
Grout Back: Neat cement grout from 260.0 to 230.5 feet.
Bentonite Seal: Depth; from 190.4 to 196.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 190.4 ft.

ADDITIONAL DATA:

Static water level: Date; 1/17/86
Depth; 216.32 feet below top of casing
Elevation; 5289.14 ft.
Chemistry: Date;12/03/85
pH; 13.03 Sp. cond. 6800 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

SITE # P247

GEOLOGIC LOG: P247A

Depths (in feet) from	to	
0.0	5.0	Sand, silty, very fine grained, dark brown.
5.0	15.0	Grades with a trace of clay.
15.0	25.0	Silt, trace of clay, medium gray brown.
25.0	30.0	Clay, medium gray.
30.0	40.0	Grades with a trace of very fine sand and a trace of gravel, medium brown to medium gray brown.
40.0	50.0	Silt, trace of very fine sand, trace of clay, light to medium gray brown.
50.0	60.0	Grades light to medium yellow brown.
60.0	65.0	Silt, silty clay with a trace of fine sand and a few cobbles, light yellow brown.
65.0	75.0	Clay, silty with a trace of fine sand and few cobbles, medium to dark red brown.
75.0	80.0	Silt, some fine to coarse sand, light yellow brown.
80.0	95.0	Sand, silty, fine to very coarse grained, trace of gravel, light yellow brown.
95.0	100.0	Grades with a trace of clay.
100.0	120.0	Sand, fine to very coarse with a trace of gravel, light yellow brown.
120.0	125.0	Silt, some gravel and a trace of fine sand, light yellow brown.
125.0	130.0	Gravel, silty with some fine to coarse sand, light yellow brown.
130.0	135.0	Sand, silty, very fine to very coarse, light yellow brown.
135.0	140.0	Gravel and sand, very fine to very coarse, silty, light yellow brown.
140.0	145.0	Silt, trace of very fine sand, gravel, and clay, light yellow brown.
145.0	150.0	Sand, silty, fine to medium grained,light yellow brown.
150.0	155.0	Silt, some gravel with a trace of clay, light yellow brown.
155.0	160.0	Silt, some clay with fine to medium sand, trace of gravel, light yellow brown.
160.0	170.0	Silt, clayey with some gravel, light yellow brown.
170.0	175.0	Sand, silty, fine to coarse grained, with some gravel and cobbles, light yellow brown.
175.0	180.0	Gravel, silty, fine to very coarse sand, few cobbles, light yellow brown.
180.0	185.0	Silt, some fine sand, trace of gravel, light yellow brown.
185.0	190.0	Gravel, silty fine to very coarse sand, trace of clay, light yellow brown.
190.0	195.0	Grades without trace of clay.
195.0	202.0	Sand, coarse and well sorted, trace of gravel, light yellow brown.
202.0	205.0	Gravel with some fine to coarse sand, light yellow brown.
205.0	215.0	Gravel, sand and boulders, light yellow brown.
215.0	225.0	Gravel, silty, fine to coarse grained sand, light yellow brown.
225.0	230.0	Sand, silty, fine to coarse grained with some gravel, light yellow brown.

REMARKS: Boring P247A had 8 inch casing advanced to 215.0 foot depth and 6 inch casing advanced to 230.0 foot depth during drilling.

WELL CONSTRUCTION DATA:

WELL P247A
Location: Kennecott Coordinate; N. 12298.396 E. 51521.431
Township & Range Coordinates; NW 1/4 NW 1/4 NE 1/4 of Sec. 20 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4634.00 ft. Top of casing; 4636.58 ft.
Completion Date: 2/22/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 215.0 feet, 7 in. to 230.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 209.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 209.0 to 229.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 202.0 ft. to 230.0 feet.
Bentonite Seal: Depth; from 197.0 to 202.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 197.0 ft.

ADDITIONAL DATA:

Static water level: Date; 4/18/86
Depth; 187.15 feet below top of casing
Elevation; 4449.43 ft.
Chemistry: Date; 2/21/86
pH; 6.88 Sp. cond. 3400 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

SITE # P247

GEOLOGIC LOG: P247B

Depths (in feet)

from	to	
0.0	5.0	Silt, light gray brown to tan, trace of very fine sand, trace fo gravel, predominantly quartzite with lesser amounts of andesite.
5.0	10.0	Clay and silty clay, light gray brown to tan with a trace of medium grained sand.
10.0	20.0	Grades with a trace of silt and gravel.
20.0	25.0	Grades with more coarse gravel, quartzite, tan to brown.
25.0	30.0	Clay and gravel, light gray brown to tan.
30.0	35.0	Clay, silty with some very fine to coarse sand and gravel, light gray brown to tan.
35.0	40.0	Silt, with some very fine to coarse sand and gravel and a trace of clay, light gray brown to tan.
40.0	45.0	Sand, medium to coarse grained with some fine gravel and trace of silt, light gray brown to tan.
45.0	55.0	Clay, with some fine to coarse sand and gravel, medium reddish brown.
55.0	60.0	Grades with more gravel and some silt.
60.0	65.0	Sand, silty, fine to very coarse grained, trace of gravel and clay, medium yellow brown.
65.0	70.0	Silt, clayey light yellow brown, with some fine sand and gravel.
70.0	75.0	Sand, light yellow brown, silty, fine to coarse grained with some gravel.
75.0	80.0	Grades with more silt.
80.0	90.0	Sand, light to medium yellow brown, silty, fine to very coarse, with some gravel.
90.0	95.0	Silt and fine sand, light to medium yellow brown.
95.0	100.0	Sand, silty, trace of gravel, light to medium yellow brown.
100.0	110.0	Grades with more gravel and trace of clay.
110.0	115.0	Sand, silty, fine to coarse grained with large cobbles and a trace of silty clay, medium yellow brown.
115.0	120.0	Grades without cobbles.
120.0	125.0	Grades without gravel.
125.0	130.0	Clay, silty, with coarse gravel, light to medium brown.
130.0	140.0	Gravel, silty, with a trace medium sand, light to medium brown.
140.0	145.0	Silt, light to medium brown, trace of medium to coarse sand.
145.0	155.0	Grades with some gravel.
155.0	165.0	Sand, clayey, very fine to very coarse with a trace of silt, medium yellow brown.
165.0	170.0	Grades with more clay.
170.0	175.0	Gravel, fine, with some medium to coarse sand, light to medium yellow brown.
175.0	185.0	Sand, silty, fine to coarse with some clay, light to medium yellow brown.
185.0	195.0	Grades with some gravel and trace silt.
195.0	200.0	Sand, coarse, with some silty clay, light to medium red brown.
200.0	205.0	Grades with some gravel.
205.0	210.0	Gravel, coarse with cobbles and some silty clay and trace fine sand, light to medium red brown.

210.0	225.0	Sand, silty, fine to coarse grained with some gravel and trace of clay, light to medium yellow brown.
225.0	230.0	Grades with some cobbles.
230.0	235.0	Silt and sand, very fine to coarse with some gravel and trace of clay, light to medium yellow brown.
235.0	240.0	Grades less sand and more silty clay.
240.0	250.0	Sand, silty, fine to coarse grained with some gravel and trace of clay, light to medium red brown.
250.0	260.0	Silt, medium to coarse grained sand, some gravel, light to medium yellow brown.
260.0	265.0	Grades more silt and less sand and gravel.
265.0	275.0	Sand, silty very fine to very coarse grained with some gravel, light to medium yellow brown.
275.0	280.0	Silt, fine to coarse grained sand and a trace clay, light to medium yellow brown.
280.0	295.0	Clay, some medium to coarse grained sand and gravel, few cobbles, light to medium yellow brown.
295.0	305.0	Sand, silty medium to coarse grained and gravel, light to medium yellow brown.
305.0	315.0	Grades with more silt.
315.0	320.0	Sand, medium to coarse grained, clayey with a trace gravel, light yellow brown.
320.0	325.0	Grades more sand, less clay.
325.0	330.0	Sand, fine to medium grained, silty, trace clay, light yellow brown.
330.0	335.0	Gravel, some coarse sand, light yellow brown.
335.0	340.0	Sand, very coarse and silty, light yellow brown.
340.0	350.0	Grades with gravel and cobbles.
350.0	355.0	Sand, silty, fine to very coarse, trace gravel, light yellow brown.
355.0	360.0	Grades siltier.
360.0	365.0	Sand, silty, coarse to very coarse, light yellow brown.
365.0	370.0	Grades with some silty clay.
370.0	375.0	Grades without clay, more silt.
375.0	385.0	Sand, silty, coarse to very coarse with some gravel, medium yellow brown.
385.0	390.0	Grades without gravel.
390.0	395.0	Sand, silty, medium to coarse grained and gravel, medium yellow brown.
395.0	400.0	Grades with trace of clay.
400.0	405.0	Grades without clay.
405.0	410.0	Grades with some clay.
410.0	415.0	Sand, fine to coarse, silty, medium yellow brown.
415.0	420.0	Grades coarser.
420.0	425.0	Sand, very fine, clayey, medium yellow brown.
425.0	435.0	Sand, silty, fine to very coarse, medium yellow brown.
435.0	440.0	Sand and gravel, silty with some clay and few cobbles, medium yellow brown.
440.0	445.0	Sand, medium grained, silty with some clay, medium yellow brown.
445.0	450.0	Silt, with some medium to coarse sand and clay, medium yellow brown.
450.0	460.0	Sand, medium grained, silty, trace clay, medium yellow brown.
460.0	465.0	Grades coarser.
465.0	470.0	Grades with more clay.
470.0	475.0	Sand, fine grained, some gravel, medium yellow brown.

475.0	480.0	Sand, fine to medium grained, silty, trace of clay, medium yellow brown.
480.0	490.0	Gravel, silty, trace of sand, medium yellow brown.
490.0	495.0	Grades with more sand.
495.0	500.0	Sand, medium to coarse grained and gravel, silty with trace of clay, medium yellow brown.
500.0	505.0	Grades without clay.
505.0	510.0	Sand, coarse grained, silty, trace gravel, medium yellow brown.
510.0	520.0	Grades with more gravel and trace clay.
520.0	530.0	Sand, clayey with some silty gravel, medium brown.
530.0	535.0	Sand, silty, very coarse grained, trace of clay, medium brown.
535.0	540.0	Silt, some fine to medium grained sand, medium brown.
540.0	545.0	Sand, fine to medium grained, silty with a trace of clay, medium brown.
545.0	550.0	Clay, sandy fine to coarse grained, medium brown.
550.0	555.0	Sand, fine to coarse grained, silty with trace of gravel, medium brown.
555.0	560.0	Silt, fine to coarse sand, trace of clay, medium brown.
560.0	570.0	Sand, fine to medium grained, silty with some gravel, medium yellow brown.
570.0	575.0	Sand, silty, very fine to fine grained, medium yellow brown.
575.0	580.0	Sand, silty, very fine to medium grained, trace gravel, medium brown.
580.0	590.0	Sand, silty, medium to very coarse grained, trace of gravel, medium yellow brown.
590.0	595.0	Cobbles, some fine silty gravel, medium yellow brown.
595.0	600.0	Sand, silty, medium to very coarse grained, trace of gravel, medium yellow brown.
600.0	610.0	Gravel, silty, some coarse to very coarse sand, light yellow brown.
610.0	615.0	Cobbles and boulders, some silt, light yellow brown
615.0	620.0	Silt, some very fine to medium grained sand, trace of clay, medium brown.
620.0	625.0	Clay, fine to coarse sand, some gravel, medium to dark brown.
625.0	635.0	Silt, fine to very coarse grained sand, some gravel, light yellow brown.
635.0	640.0	Boulders and cobbles with some medium to coarse grained sand, silty, light yellow brown.
640.0	645.0	Silt, medium to coarse grained sand, trace of gravel, light yellow brown.
645.0	650.0	Gravel and cobbles with some very fine to coarse grained sand, light yellow brown.
650.0	655.0	Grades without cobbles.
655.0	665.0	Silt with some fine to coarse sand, trace of gravel, light yellow brown.
665.0	670.0	Grades with some clay and a trace of gravel.
670.0	675.0	Silt, clayey with some fine to coarse sand and a trace of gravel, light yellow brown.
675.0	680.0	Silt with some fine to coarse grained sand and a trace of gravel, light yellow brown.
680.0	685.0	Gravel, some coarse to very coarse sand, silty with a trace of clay, medium yellow brown.
685.0	690.0	Clay, silty and dense, medium brown.
690.0	700.0	Grades to medium gray brown.
700.0	710.0	Clay, silty and dense, medium dark brown.
710.0	715.0	Silt, clayey with some medium to coarse grained

		sand and a trace of gravel, medium yellow brown.
715.0	720.0	Silt, sandy fine to very coarse grained with a trace of gravel and a trace of clay, medium yellow brown.
720.0	725.0	Silt, clayey with some fine to very coarse sand and a trace of gravel, medium yellow brown.
725.0	730.0	Grades with more gravel.
730.0	735.0	Clay, dense with a trace of very fine gravel and a trace of fine sand, possible root holes, medium to dark yellow brown.
735.0	740.0	Gravel, silty with some medium to coarse grained sand, medium yellow brown.
740.0	745.0	Clay, some very coarse sand, trace of gravel, dense tan to medium brown.
745.0	755.0	Clay, trace of coarse sand and a trace of gravel, medium brown.
755.0	760.0	Silt, sandy fine to very coarse, some gravel, medium greenish brown.
760.0	765.0	Grades without gravel.
765.0	770.0	Gravel, silty with fine to very coarse sand, medium to dark yellow brown.
770.0	775.0	Clay, trace of very coarse sand, trace of gravel, medium to dark yellow brown.
775.0	785.0	Silt, trace of very fine to fine sand, medium yellow brown.
785.0	790.0	Clay, some medium to coarse sand, medium yellow brown.
790.0	795.0	Grades with less sand.
795.0	800.0	Sand, silty very fine to fine grained, trace of clay, medium yellow brown.
800.0	805.0	Clay, silty, some very fine to coarse sand, trace of gravel, medium yellow brown.
805.0	815.0	Grades without gravel.
815.0	825.0	Silt, fine to very coarse sand, trace of gravel, trace of clay, medium yellow brown.
825.0	830.0	Clay, gravelly, some fine to coarse sand, volcanic ash altered to bentonite, creme to tan to medium brown.
830.0	835.0	Clay, some medium to coarse sand, medium brown.
835.0	845.0	Grades without sand.
845.0	850.0	Silt, clayey with some gravel, medium brown.
850.0	865.0	Silt with some very fine to fine sand, light yellow brown.
865.0	870.0	Clay, some coarse sand, some gravel, medium brown.
870.0	875.0	Grades without sand and gravel.
875.0	880.0	Clay, volcanic ash altered to bentonite, creme tan to light brown.
880.0	885.0	Grades with coarse sand and a trace of gravel.
885.0	905.0	Clay, trace of medium to coarse sand, thin layers of volcanic ash altered to bentonite, creme to tan to light brown.

REMARKS: Boring 247B had 10 inch casing advanced to 524 feet, and 8 inch casing advanced to 870 feet. Ten inch casing perforated and abandoned in boring.

WELL CONSTRUCTION DATA:

WELL 247B

Location: Kennecott Coordinate; N. 12263.743 E. 51281.471
Township & Range Coordinates; NW 1/4 NW 1/4 NE 1/4 of Sec. 20 Twp. 3 S. Rge. 1 W S.L.B.M.

Elevation: Ground; 4621.623 ft. Top of casing; ft.

Completion Date: 5/13/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 11.0 in. from ground surface to 605 feet,
9.0 in. from 605 to 905 feet.
Boring Depth: 905 feet.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Well contains submersible pump with pitless adaptor
on surface completion.
Casing: Diameter; 6.0 inch Material; Schedule 80 PVC
Depth; from ground to 615.0 feet.
Screen: Diameter; 6.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 615.0 to 655.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand, natural gravels.
Depth; from 532.0 ft. to 665.0 feet.
Bentonite Seal: Depth; from 523.0 to 532.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 523.0 ft.
Grout Back: 905.0 to 665.0 feet with coarse bentonite rock.

ADDITIONAL DATA:

Static water level: Date; 4/14/86
Depth; 174.03 feet below top of casing
Elevation; ####.## ft.
Chemistry: Date; 4/04/86
pH; 7.09 Sp. cond. 1700 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

SITE # P248

GEOLOGIC LOG: P248C

Depths (in feet) from	to	
0.0	5.0	Gravel, silty with medium to coarse sand and trace of clay, medium to dark brown. Gravel is predominantly quartzite, white to light tan with minor amounts of andesite porphyry, light to medium gray.
5.0	15.0	Grades with more gravel and cobbles.
15.0	20.0	Grades without sand.
20.0	25.0	Gravel and silt with some fine to coarse sand, medium to dark brown.
25.0	30.0	Grades with some clay, medium to dark brown.
30.0	35.0	Silt and gravel, trace of fine sand, medium to dark brown.
35.0	40.0	Sand, fine to coarse grained, some gravel and silt, dark brown.
40.0	45.0	Gravel, some fine to coarse grained sand, silty, medium dark brown.
45.0	50.0	Grades sandier.
50.0	55.0	Grades with more silt.
55.0	60.0	Sand, fine to coarse grained, silty, some gravel and a trace of clay, medium brown.
60.0	65.0	Sand, medium to coarse grained, silty with some gravel, light yellow brown.
65.0	70.0	Grades with a trace of clay.
70.0	75.0	Grades without clay.
75.0	80.0	Gravel, sandy and clayey, few cobbles and boulders light yellow brown.
80.0	85.0	Sand, coarse grained, silty with some gravel, light yellow brown.
85.0	90.0	Grades with more silt.
90.0	95.0	Gravel, silty with medium to coarse sand, light yellow brown.
95.0	100.0	Gravel, silty, light yellow brown. Gravel is predominantly quartzite with lesser amounts of andesite porphyry and andesite, dark gray.
100.0	108.0	Gravel, dark gray brown, comprised of equal amounts of light to medium gray quartzite and medium to dark gray andesite porphyry.
108.0	110.0	Agglomerate, medium gray brown, predominantly medium brown andesite porphyry with lesser amounts of light gray andesite porphyry.
110.0	115.0	Agglomerate, medium gray brown, predominantly andesite porphyry, light gray, with lesser amounts of andesite, dark gray.
115.0	120.0	Grades with thin interbedded non-welded tuffs.
120.0	130.0	Agglomerate, medium gray, predominantly light gray andesite porphyry with lesser amounts of medium brown andesite, porphyritic.
130.0	135.0	Agglomerate, medium gray brown, predominantly medium brown andesite porphyry with lesser amounts medium gray andesite porphyry, interbedded with with tuffs, light gray, non-welded.
135.0	140.0	Agglomerate, medium to dark gray, predominantly medium to dark gray andesite, porphyritic.
140.0	155.0	Agglomerate, dark gray brown, predominantly dark brown andesite, porphyritic, with lesser amounts of medium to dark gray porphyritic andesite.

155.0	165.0	Agglomerate,medium to dark gray brown, predominantly medium to dark brown andesite with lesser amounts of medium to dark gray andesite porphyry, and dark gray to black andesite.
165.0	170.0	Agglomerate, medium to dark brown, predominantly medium brown andesite porphyry with lesser amounts of medium to dark gray andesite porphyry, dark gray hornblende andesite porphyry and interbedded thin non-welded tuffs.
170.0	175.0	Agglomerate, medium to dark brown, predominantly dark brown andesite with lesser amounts of light gray andesite porphyry, dark gray andesite and a trace of rhyolite porphyry, medium red.
175.0	180.0	Agglomerate, medium brown, predominantly medium to dark brown andesite with some hornblende andesite porphyry and dark gray andesite, interbedded with medium yellow brown clayey tuffs.
180.0	185.0	Agglomerate, medium to dark gray, non-welded interbedded with non-welded tuffs.
185.0	190.0	Agglomerate, medium brown, predominantly medium to dark gray andesite porphyry with minor amounts of dark gray andesite and porphyritic rhyolite.
190.0	195.0	Agglomerate, medium brown, predominantly medium to dark gray andesite with lesser amounts of medium to dark brown andesite porphyry.
195.0	200.0	Grades with some non-welded tuffs, medium to dark yellow brown.

REMARKS: Boring P248C had casing advanced to 103 feet during drilling. Contact between the Tertiary gravels and the agglomerate is at 108 feet below grade. Contact between gravel and agglomerate in P248B exists at 93 feet below grade, and at 98 feet below grade in boring P248A.

WELL CONSTRUCTION DATA:

WELL P248C

Location: Kennecott Coordinate; N. 15496.016 E. 17827.603
Township & Range Coordinates; SW 1/4 NE 1/4 NW 1/4 of Sec. 17 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5338.40 ft. Top of casing; 5341.08 ft.
Completion Date: 12/21/85
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool.
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 198.5 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 175.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 175.0 to 195.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 168.5 ft. to 198.5 feet.
Bentonite Seal: Depth; from 162.4 to 168.5 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 162.4 ft.

ADDITIONAL DATA:

Static water level: Date;12/23/85
Depth; 59.58 feet below top of casing

Elevation; 5281.63 ft.
Chemistry: Date;12/23/85
pH; 7.07 Sp. cond. 2100 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P248B
Location: Kennecott Coordinate; N. 15490.175 E. 17849.577
Township & Range Coordinates; SW 1/4 NE 1/4 NW 1/4
of Sec. 17 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5336.60 ft. Top of casing; 5339.19 ft.
Completion Date: 1/02/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool.
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 140.5 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 120.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 120.0 to 140.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 113.0 ft. to 140.5 feet.
Bentonite Seal: Depth; from 108.0 to 113.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 108.0 ft.

ADDITIONAL DATA:

Static water level: Date; 1/23/86
Depth; 62.02 feet below top of casing
Elevation; 5279.80 ft.
Chemistry: Date; 1/15/86
pH; 5.03 Sp. cond. 4650 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P248A
Location: Kennecott Coordinate; N. 15485.079 E. 17874.843
Township & Range Coordinates; SW 1/4 NE 1/4 NW 1/4
of Sec. 17 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5334.80 ft. Top of casing; 5337.80 ft.
Completion Date: 3/17/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool.
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 100.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 80.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 80.0 to 100.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand

Depth; from 73.4 ft. to 100.0 feet.
Bentonite Seal: Depth; from 65.9 to 73.4 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 73.4 ft.

ADDITIONAL DATA:

Static water level: Date; 3/18/86
Depth; 61.12 feet below top of casing
Elevation; 5276.68 ft.
Chemistry: Date; 3/17/86
pH; 3.79 Sp. cond. 7200 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

SITE # P250

GEOLOGIC LOG: P250B

Depths (in feet) from	to	
0.0	5.0	Gravel, very silty, some boulders, dark brown.
5.0	10.0	Sand, medium to coarse grained, clayey with some gravel and boulders, medium yellow brown.
10.0	15.0	Grades silty with boulders, tan to light brown.
15.0	20.0	Clay, silty, tan to light brown.
20.0	25.0	Silt, trace of coarse sand.
25.0	30.0	Grades with some gravel.
30.0	35.0	Sand, fine to medium grained, very silty, trace of gravel, tan to light brown.
35.0	40.0	Gravel, very silty, some fine to coarse sand, tan to light brown.
40.0	45.0	Sand, very silty, fine to very coarse grained, tan to light brown.
45.0	50.0	Grades clayey with some gravel.
50.0	55.0	Gravel, sandy medium to very coarse, some silt, light yellow brown.
55.0	60.0	Sand, clayey, fine to very coarse grained, some gravel, light yellow brown.
60.0	70.0	Grades without gravel.
70.0	75.0	Gravel, sandy fine to very coarse, some silt, light yellow brown.
75.0	85.0	Sand, medium to very coarse grained, trace of gravel, light yellow brown.
85.0	90.0	Sand, clayey, medium to very coarse grained, some gravel, light yellow brown.
90.0	95.0	Grades siltier.
95.0	105.0	Sand, silty, fine to very coarse grained, some gravel, weak to moderately cemented, light yellow brown.
105.0	110.0	Sand, fine to very coarse grained, some gravel, silt, weak to moderately cemented, light yellow brown.
110.0	115.0	Grades slightly coarser.
115.0	120.0	Gravel, very silty, some fine to very coarse sand, weak to moderately cemented, light yellow brown.
120.0	130.0	Grades with more silt.
130.0	135.0	Grades with some cobbles.
135.0	140.0	Gravel, sandy fine to very coarse, some silt, weak to moderately cemented, light yellow brown.
140.0	145.0	Grades with some cobbles.
145.0	160.0	Grades very silty.
160.0	170.0	Sand, very silty, medium to very coarse, some gravel, moderately cemented, light yellow brown.
170.0	185.0	Gravel, very silty, some medium to very coarse sand, weak to moderately cemented, light yellow brown.
185.0	190.0	Gravel, very fine, very silty, some fine to very coarse sand, weakly cemented, light yellow brown.
190.0	195.0	Silt, sandy fine to very coarse, some gravel, weakly cemented, light yellow brown.
195.0	200.0	Gravel, very silty, sandy fine to very coarse, weakly cemented, light yellow brown.
200.0	210.0	Gravel, silty, some fine to very coarse sand, weak to moderately cemented, light yellow brown.
210.0	215.0	Grades with more fine to coarse sand.

215.0	220.0	Sand, fine to very coarse, silty, some gravel, weak to moderately cemented, light yellow brown.
220.0	225.0	Grades with more gravel.
225.0	230.0	Gravel, silty, some fine to very coarse sand, weak to moderately cemented, light yellow brown.
230.0	235.0	Grades with more fine to very coarse sand.
235.0	240.0	Grades very silty.
240.0	245.0	Grades with some cobbles.
245.0	255.0	Sand, fine to very coarse, silty, some gravel, weak to moderately cemented, light yellow brown.
255.0	275.0	Grades very silty, weak to moderately cemented, light yellow brown.
275.0	280.0	Gravel, very silty, some medium to coarse sand, medium yellow brown.
280.0	285.0	Grades with more fine to coarse sand.
285.0	295.0	Grades with a trace of clay.
295.0	300.0	Gravel, fine, trace of medium to coarse sand, trace of silt, medium yellow brown.
300.0	305.0	Grades with a trace of clay.
305.0	315.0	Gravel, clayey, some fine to very coarse sand, tan to light brown.
315.0	320.0	Gravel, very fine, clean, some medium to coarse sand, weak to moderately cemented, medium yellow brown.
320.0	325.0	Grades with more sand.
325.0	330.0	Gravel, some fine to very coarse sand, trace of silt, weak to moderately cemented, medium yellow brown.
330.0	340.0	Sand, very silty, fine to very coarse grained, some fine gravel, weak to moderately cemented, medium yellow brown.
340.0	345.0	Gravel, some fine to very coarse sand, trace of silt, weak to moderately cemented, medium yellow brown.
345.0	370.0	Grades without silt.
370.0	375.0	Gravel, silty, some fine to coarse sand, weak to moderately cemented, medium yellow brown.
375.0	380.0	Sand, very silty, fine to very coarse grained, trace of gravel, weak to moderately cemented, medium yellow brown.
380.0	385.0	Gravel, very silty, some fine to coarse sand, weakly cemented, medium yellow brown.
385.0	390.0	Grades without silt.
390.0	395.0	Gravel, silty, some fine to coarse sand, weakly cemented, medium yellow brown.
395.0	400.0	Sand, silty, fine to very coarse, some gravel and cobbles, weakly cemented, medium yellow brown.
400.0	405.0	Sand, very fine, some silt, medium yellow brown.
405.0	410.0	Clay, silty, trace of very fine sand, medium yellow brown.
410.0	420.0	Clay, very silty, trace of very fine sand, medium yellow brown.
420.0	425.0	Clay, silty, trace of fine to very fine sand, medium yellow brown.
425.0	431.0	Sand, fine to very coarse grained, clayey, medium yellow brown.

REMARKS: Boring P250B had 8 inch casing advanced to 400 foot depth during drilling. Difficulties in removing temporary drive casing during completion resulted in abandonment of casing shoe at 400 feet below grade. Boring was drilled to 431 feet with a 6 inch diameter and well was completed to total depth. Boring P250A had 8 inch casing advanced to total

depth during drilling.

WELL CONSTRUCTION DATA:

WELL P250B
Location: Kennecott Coordinate; N. 20460.89 E. 33691.83
Township & Range Coordinates; NW 1/4 SE 1/4 NW 1/4
of Sec. 11 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; ft. Top of casing; ft.
Completion Date: 3/13/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 400.0 feet.
Boring: Diameter; 6.0 in. Depth; 431.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 411.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 411.0 to 431.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 401.0 ft. to 431.0 feet.
Bentonite Seal: Depth; from 389.0 to 401.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 389.0 ft.

ADDITIONAL DATA:

Static water level: Date; 03/16/87
Depth; 291.5 feet below top of casing
Elevation; ft.
Chemistry: Date; 03/17/87
pH; 8.15 Sp. cond. 1250 micromhos/cm.
temperature; 17.1 degrees centigrade
COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P250A
Location: Kennecott Coordinate; N. 20459.04 E. 33676.89
Township & Range Coordinates; NW 1/4 SE 1/4 NW 1/4
of Sec. 11 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 05/04/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 320.0 ft.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 300.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 300.0 to 320.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 293.0 to total depth.
Bentonite Seal: Depth; from 288.0 to 293.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 288.0 ft.

ADDITIONAL DATA:

Static water level: Date; 05/13/87
Depth; 292.2 feet below top of casi
Elevation; . ft.

Chemistry: Date; 05/04/87
pH; 7.69 Sp. cond. 1550 micromhos/cm.
Temperature; 17.2 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE # P249

GEOLOGIC LOG: P249B

Depths (in feet) from	to	
0.0	5.0	Silt, some gravel with fine to very coarse grained sand, medium to dark brown.
5.0	10.0	Grades with more gravel.
10.0	15.0	Silt, clayey, medium to coarse sand with few gravel pieces, medium brown.
15.0	20.0	Grades without clay.
20.0	25.0	Sand, silty fine to coarse with some gravel, medium brown.
25.0	30.0	Grades with trace of clay.
30.0	35.0	Silt, sandy fine to coarse grained, trace of gravel medium brown.
35.0	45.0	Grades with more gravel and a trace of clay.
45.0	50.0	Gravel, silty with some fine to coarse sand, medium yellow brown.
50.0	55.0	Sand, silty fine to coarse, some gravel, medium yellow brown.
55.0	60.0	Silt, sandy fine to coarse grained with some gravel, medium yellow brown.
60.0	65.0	Silt, clayey with fine to coarse sand, trace of gravel, medium yellow brown.
65.0	70.0	Sand, silty fine to very coarse with a trace of gravel, medium yellow brown.
70.0	75.0	Grades with more gravel.
75.0	85.0	Silt, some fine to medium grained sand, trace of gravel, medium yellow brown.
85.0	90.0	Silt, sandy fine to coarse grained with some gravel, medium yellow brown.
90.0	95.0	Grades with a trace of clay.
95.0	100.0	Sand, fine to medium grained with a trace of silt and a trace of gravel, medium yellow brown.
100.0	110.0	Sand, silty very fine to coarse with a trace of gravel, medium yellow brown.
110.0	120.0	Gravel, sandy very fine to very coarse grained and silty, medium yellow brown.
120.0	125.0	Sand, silty fine to coarse grained with a trace of gravel, medium yellow brown.
125.0	130.0	Silt, sandy fine to coarse grained with a trace of gravel, medium yellow brown.
130.0	135.0	Grades without gravel.
135.0	140.0	Sand, silty fine to very coarse, trace of gravel, medium yellow brown.
140.0	145.0	Silt with some fine to medium grained sand, medium yellow brown.
145.0	155.0	Grades with more medium to coarse sand, weakly cemented, medium yellow brown.
155.0	160.0	Sand, fine to very coarse, silty with a trace of gravel, strongly cemented, medium yellow brown.
160.0	165.0	Silt with some fine to coarse grained sand, medium yellow brown.
165.0	170.0	Sand, silty, medium to coarse grained,medium yellow brown.
170.0	175.0	Silt, fine to coarse grained sand, medium yellow brown.
175.0	185.0	Gravel and trace of clay, weak to moderately cemented, medium yellow brown.
185.0	190.0	Sand, fine to coarse grained, silty, moderately

		cemented, medium yellow brown.
190.0	195.0	Silt with a trace of fine sand, weak to moderatel cemented, medium yellow brown.
195.0	200.0	Sand, silty fine to very coarse, trace of gravel, weak to moderately cemented, medium yellow brown.
200.0	210.0	Clay, sandy medium grained, silty, weak to moderately cemented, medium yellow brown.
210.0	215.0	Sand, silty fine to vewry coarse, trace of gravel, weak to moderately cemented, medium yellow brown.
215.0	220.0	Sand, very coarse, silty with gravel, trace of clay, moderately cemented, medium yellow brown.
220.0	240.0	Sand, very coarse, clayey, trace of gravel, medium yellow brown.
240.0	250.0	Grades siltier, weak to moderately cemented.
250.0	255.0	Gravel, silty and sandy medium to very coarse, trace of clay, weak to moderately cemented, medium yellow brown.
255.0	280.0	Sand, clayey, medium to very coarse grained, trace of clay, medium yellow brown.
280.0	285.0	Grades with more gravel.
285.0	290.0	Grades with less gravel.
290.0	295.0	Grades without gravel
295.0	300.0	Gravel, silty with trace of fine to coarse sand, medium yellow brown.
300.0	305.0	Grades with some clay.
305.0	310.0	Sand, silty and clayey, medium to coarse grained, medium yellow brown.
310.0	315.0	Grades with less clay and more silt, medium yellow brown.
315.0	330.0	Grades with a trace of gravel.
330.0	340.0	Sand, medium to very coarse grained, trace of silt, medium yellow brown.
340.0	345.0	Gravel, silty with fine to very coarse sand, and stringers of clay, medium yellow brown.
345.0	350.0	Gravel, silty and clayey with fine to very coarse sand, medium yellow brown.
350.0	355.0	Grades with more sand, moderately cemented.
355.0	365.0	Sand, medium to very coarse grained with some gravel, weakly cemented, medium yellow brown.
365.0	370.0	Gravel, silty with fine to very coarse sand, some stringers of clay, weakly cemented, medium yellow brown.
370.0	385.0	Grades without silt or clay, with more very coarse sand, weakly cemented, medium yellow brown.
385.0	390.0	Gravel, silty with fine to very coarse sand, weakly cemented, medium brown.
390.0	395.0	Sand, silty fine to very coarse with some gravel, weakly cemented, medium brown.
395.0	400.0	Silt, sandy fine to coarse grained with some gravel, weakly cemented, medium brown.

REMARKS: Boring 249A had 8 inch casing advanced to 165 feet below grade during drilling, and was re-drilled from 270 to 330 feet below grade with a 6 inch tool bit. P249B drilled out of, and advanced 8 inch casing to total depth of boring. The presence of cementing agents identified with 10% HCl acid solution and reactivity with sediments.

WELL CONSTRUCTION DATA:

WELL 249A

Location: Kennecott Coordinate; N. 20424.095 E. 27238.259

Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 10 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5152.40 ft. Top of casing; 5154.67 ft.
Completion Date: 2/16/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 270 feet; 6.0 in. to 329 feet.
Boring depth: 329.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 308.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 308.0 to 328.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 301.0 ft. to total depth.
Bentonite Seal: Depth; from 295 to 301.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 295 ft.

ADDITIONAL DATA:

Static water level: Date; 4/18/86
Depth; 259.22 feet below top of casing
Elevation; 4895.45 ft.
Chemistry: Date; 2/16/86
pH; 5.98 Sp. cond. 1700 micromhos/cm.

WELL CONSTRUCTION DATA:

WELL P249B
Location: Kennecott Coordinate; N. 20394.544 E. 27233.229
Township & Range Coordinates; NW1/4, NW1/4, SW1/4 of Sec. 10 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5153.70 ft. Top of casing; 5155.94 ft.
Completion Date: 4/18/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 400.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 370.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 370.0 to 390.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 363.0 ft. to 390.0 feet.
Bentonite Seal: Depth; from 358.0 to 363.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 358.0 ft.

ADDITIONAL DATA:

Static water level: Date; 6/03/86
Depth; 256.50 feet below top of casing
Elevation; 4899.44 ft.
Chemistry: Date; 4/22/86
pH; 7.71 Sp. cond. 1250 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

SITE P251

GEOLOGIC LOG: P251

Depths (in feet) from	to	
0.0	5.0	Clay with some gravel, trace of coarse sand, dark gray.
5.0	15.0	Silt, trace of clay, trace of gravel, medium tan to gray.
15.0	25.0	Silt with some clay, trace of fine sand, medium tan to gray.
25.0	30.0	Grades without clay.
30.0	35.0	Clay with some gravel, few cobbles, medium gray.
35.0	40.0	Sand, silty fine to very coarse with thin clay lenses, light tan to brown.
40.0	45.0	Grades with more clay.
45.0	55.0	Silt, clayey with some fine sand, trace of gravel, tan to medium brown.
55.0	65.0	Clay, silty with some gravel and cobbles, light grayish green.
65.0	75.0	Clay, silty with some fine to coarse sand and gravel, tan to medium brown.
75.0	80.0	Gravel, fine with trace of silt, tan to medium brown.
80.0	85.0	Grades siltier.
85.0	90.0	Silt, some gravel with some fine to coarse sand, light pinkish brown.
90.0	95.0	Grades with some clay.
95.0	105.0	Gravel, fine with some silt, well sorted, tan to light brown.
105.0	110.0	Grades with some larger gravel.
110.0	113.0	Clay, light to medium brown.
113.0	115.0	Gravel, fine and silty, tan to light brown.
115.0	120.0	Gravel, fine, well sorted, trace of silt, tan to light brown.
120.0	125.0	Grades with some cobbles.
125.0	130.0	Gravel, fine, well sorted, clean with trace of silt.
130.0	135.0	Gravel, silty with some fine to very coarse sand, light tan to creme.
135.0	140.0	Gravel, fine and well sorted, trace of silt, tan to medium brown.
140.0	145.0	Sand, coarse with some fine gravel, clean, light yellow brown.

REMARKS: Boring P251 had 8 inch casing advanced to total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P251

Location: Township & Range Coordinates; SW 1/4 NE 1/4 NW 1/4 of Sec. 34 Twp. 2 S. Rge. 1 W S.L.B.M.

Elevation: Ground; 4693.60 ft. Top of casing; 4395.03 ft.

Completion Date: 4/4/86

Drilling Co: Basin & Range Drilling Inc.

Drilling Method: Cable tool

Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 145.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 120 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 120 to 140 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 116.2 ft. to total depth.
Bentonite Seal: Depth; from 108.5 to 116.2 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 108.5 ft.

ADDITIONAL DATA:

Static water level: Date; 4/04/86
Depth; 20.85 feet below top of casing
Elevation; 4374.18 ft.
Chemistry: Date; 4/16/86
pH; 7.71 Sp. cond. 1750 micromhos/cm.
Temperature; 15.7 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE # P252

GEOLOGIC LOG: P252C

Depths (in feet)

from	to	
0.0	5.0	Clay, silty, trace of gravel, dark brown.
5.0	10.0	Silt, some gravel, trace of fine to coarse sand, medium brown.
10.0	15.0	Gravel, very silty, few cobbles, some fine to coarse sand, tan to light brown.
15.0	20.0	Grades less silt.
20.0	25.0	Sand, silty, very coarse, some gravel, tan to light brown.
25.0	30.0	Gravel and cobbles.
30.0	35.0	Sand, silty fine to very coarse, trace of gravel, medium yellow brown.
35.0	45.0	Grades with more silt.
45.0	50.0	Sand, silty fine to coarse, some gravel, medium yellow brown.
50.0	55.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
55.0	65.0	Gravel, very silty, some medium to very coarse sand medium yellow brown.
65.0	70.0	Clay, silty, trace of fine to coarse sand, light to medium brown.
70.0	75.0	Silt, trace of fine to coarse sand, trace of clay, medium yellow brown.
75.0	85.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
85.0	90.0	Grades with more silt.
90.0	105.0	Silt, some gravel and cobbles, trace of fine to very coarse sand, medium yellow brown.
105.0	110.0	Gravel, very silty, some fine to coarse sand, tan to light brown.
110.0	115.0	Grades with less silt.
115.0	130.0	Grades very silty, occasional thin clay stringers.
130.0	135.0	Gravel, very coarse, some cobbles, trace of medium to coarse sand.
135.0	140.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
140.0	145.0	Grades with a trace of clay.
145.0	150.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
150.0	155.0	Grades with more medium to coarse sand.
155.0	165.0	Gravel, clean, well sorted, trace of fine to coarse sand, medium yellow brown.
165.0	170.0	Grades with some silt.
170.0	175.0	Silt, trace of gravel, trace of clay, medium yellow brown.
175.0	180.0	Sand medium grained, silty, trace of gravel, medium yellow brown.
180.0	185.0	Gravel, fine, silty with some fine to medium sand, medium yellow brown.
185.0	190.0	Silt, some gravel, some fine to coarse sand, thin clay stringers, medium yellow brown.
190.0	195.0	Gravel, silty with some fine to coarse sand, medium yellow brown.
195.0	200.0	Gravel, fine, clean and well sorted, some fine to coarse sand, medium yellow brown.
200.0	215.0	Grades siltier with more fine to coarse sand.
215.0	220.0	Gravel, very fine, some medium to coarse sand,

		trace of silt, dark yellow brown.
220.0	225.0	Gravel, coarse, some rounded cobbles, some medium to coarse sand, dark yellow brown.
225.0	230.0	Grades silty with more fine to coarse sand.
230.0	235.0	Sand, fine to coarse, silty with some gravel, moderately cemented, medium yellow brown.
235.0	240.0	Grades with more very fine gravel, weakly cemented, medium yellow brown.
240.0	245.0	Sand, medium to coarse grained, trace of silt, weakly cemented, medium yellow brown.
245.0	250.0	Gravel, silty, some medium to coarse sand, medium yellow brown.
250.0	253.0	Silt, some gravel, trace of clay, medium yellow brown.
253.0	262.0	Sandstone, very fine to fine grained, clean, calcareous cement, tan to light brown.
262.0	265.0	Gravel, very fine to fine, some sand, weakly cemented, medium yellow brown.
265.0	270.0	Gravel, very fine, clean, well sorted, tan to light brown.
270.0	275.0	Grades with a trace of silt, some fine to medium sand, weakly cemented, tan to light yellow brown.
275.0	280.0	Sand, fine to medium grained, clean, weakly cemented, tan to light yellow brown.
280.0	285.0	Gravel, silty, some fine to coarse sand, trace of clay, weakly cemented, tan to light yellow brown.
285.0	290.0	Sand, fine to coarse, trace of very fine gravel, weakly cemented, tan to light yellow brown.
290.0	295.0	Gravel, clean and well sorted, tan.
295.0	300.0	Sand, medium to coarse, clean and well sorted, weakly cemented, tan to light yellow brown.
300.0	305.0	Gravel, some fine to very coarse sand, moderately cemented, tan to light brown.
305.0	310.0	Silt, some very fine to coarse sand, trace of gravel, thin clay stringer, tan to light brown.
310.0	315.0	Grades without clay.
315.0	320.0	Sand, silty, medium to coarse grained, very weakly cemented, tan to light brown.
320.0	325.0	Grades coarser, very weakly cemented.
325.0	330.0	Gravel, silty, some fine to very coarse sand, weakly cemented, tan to light brown.
330.0	335.0	Grades finer with more silt.
335.0	340.0	Sand, very clean, medium grained, well sorted, tan to medium brown.
340.0	345.0	Gravel, clean and well sorted, trace of coarse sand and weakly cemented.
345.0	350.0	Grades siltier, very weakly cemented, tan to light brown.
350.0	355.0	Sand, silty, medium to very coarse, trace of gravel and very weakly cemented, tan to light brown.
355.0	365.0	Grades less silt, no cementation.
365.0	370.0	Sand, silty, very fine, tan to light brown.
370.0	375.0	Sand, medium to coarse, silty, some gravel, trace of clay, tan to light brown.
375.0	385.0	Grades siltier.
385.0	390.0	Gravel, sandy fine to coarse, trace of silt, tan to light brown.
390.0	395.0	Sand, silty fine to coarse, some gravel, tan to light brown.
395.0	400.0	Grades with less silt.

REMARKS: Boring P252C, P252B, and P252A had casing advanced to total

depth during drilling. Degree of cementation in sediments relative to reactivity with 10 percent HCl. Well P252C had 8 inch casing abandoned from 300 feet to ground surfa

WELL CONSTRUCTION DATA:

WELL P252C
Location: Kennecott Coordinate; N. 23126.369 E.53462.387
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 5 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4554.50 ft. Top of casing; 4557.12 ft.
Completion Date: 7/31/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 400.0 feet,
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 360.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 360.0 to 380.0 ft.
Grout back: 400.0 to 385.0 feet using coarse grind bentonite.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 353.0 ft. to 385.0 feet.
Bentonite Seal: Depth; from 348.0 to 353.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 348.0 ft.

ADDITIONAL DATA:

Static water level: Date; 8/28/86
Depth; 128.70 feet below top of casing
Elevation; 4428.42 ft.
Chemistry: Date; 7/31/86
pH; 8.16 Sp. cond. 1500 micromhos/cm.
Temperature; 20.9 degrees C.
COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL 252A
Location: Kennecott Coordinate; N. 23165.760 E. 53460.362
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 5 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4553.60 ft. Top of casing; 4556.36 ft.
Completion Date: 8/07/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 155.5 feet.
Boring depth: 155.5 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 135.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 135.0 to 155.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 129.3 ft. to total depth.

Bentonite Seal: Depth; from 125.0 to 129.3 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 125.0 ft.

ADDITIONAL DATA:

Static water level: Date; 8/21/86
Depth; 118.70 feet below top of casing
Elevation; 4437.66 ft.
Chemistry: Date; 8/21/86
pH; 7.53 Sp. cond. 1100 micromhos/cm.

WELL CONSTRUCTION DATA:

WELL P252B
Location: Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 5 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 7/31/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 255.5 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 255.5 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 235.0 to 255.0 feet.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 226.1 ft. to 255.5 ft.
Bentonite Seal: Depth; from 220.7ft. to 226.1 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 220.7 ft.

ADDITIONAL DATA:

Static water level: Date; 9/24/86
Depth; 114.60 feet below top of casing
Elevation; . ft.
Chemistry: Date; 9/24/86
pH; 7.30 Sp. cond. 2750 micromhos/cm.
Temperature; 16.8 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE # P253

GEOLOGIC LOG: P253B

Depths (in feet) from	to	
0.0	5.0	Clay, silty, trace of coarse sand, light to medium greenish gray.
5.0	10.0	Silt, light to medium greenish gray.
10.0	15.0	Silt, clayey, light to medium greenish gray.
15.0	20.0	Clay, silty, light to medium greenish gray.
20.0	25.0	Grades with trace of very fine sand.
25.0	35.0	Silt, clayey, trace of fine sand, light to medium greenish gray.
35.0	40.0	Grades with some gravel and some fine to coarse sand.
40.0	45.0	Silt, sandy fine to very coarse, some gravel, tan to light brown.
45.0	50.0	Clay, silty, some fine to very coarse sand, trace of gravel, tan to light brown.
50.0	60.0	Silt, clayey, trace of very fine sand, tan to light brown.
60.0	65.0	Grades without clay, with some gravel.
65.0	75.0	Clay, , tan to greenish gray.
75.0	80.0	Clay, silty, trace of gravel, trace of very coarse sand, tan to light brown.
80.0	90.0	Silt, clayey, some fine to very coarse sand, trace gravel, tan to light brown.
90.0	95.0	Grades less clay.
95.0	100.0	Clay, silty, some fine to coarse sand, trace of gravel, tan to light brown.
100.0	105.0	Sand, silty fine to very coarse, trace of gravel tan to light brown.
105.0	110.0	Grades with more gravel, medium yellow brown.
110.0	115.0	Silt, sandy, fine to very coarse sand, some gravel, trace of clay, medium yellow brown.
115.0	125.0	Sand, silty fine to coarse, trace of gravel, medium yellow brown.
125.0	130.0	Gravel, silty, very fine to very coarse sand, trace of cobbles, medium yellow brown.
130.0	135.0	Sand, silty, fine to very coarse, some gravel, medium yellow brown.
135.0	145.0	Silt, sandy fine to coarse, some gravel, medium yellow brown.
145.0	150.0	Gravel, silty with fine to coarse sand, trace of clay, tan to light brown.
150.0	155.0	Grades without trace of clay.
155.0	160.0	Sand, fine grained, clean and well sorted, tan to light brown.
160.0	175.0	Silt, trace of fine sand, trace of gravel, tan to light brown.
175.0	185.0	Sand, silty fine to coarse grained, trace of gravel, tan to light brown.
185.0	190.0	Sand, medium to coarse grained, some sandy clay stringers, tan to light brown.
190.0	195.0	Grades very silty with a trace of clay.
195.0	200.0	Silt, trace of fine to medium sand, tan to light brown.
200.0	205.0	Sand, silty fine to very coarse, tan to light brown.
205.0	210.0	Clay, silty with some coarse sand and very fine gravel, tan to light brown.

210.0	220.0	Silt, sandy fine to very coarse, tan to light brown.
220.0	225.0	Sand, silty, very fine grained, tan to light brown.
225.0	230.0	Clay, silty with some coarse sand and very fine gravel, tan to light brown.
230.0	240.0	Silt, trace of very fine sand, tan to light brown.
240.0	245.0	Silt, clayey with a trace of very fine sand, tan to light brown.
245.0	250.0	Grades with occasional clay stringers.
250.0	255.0	Silt, trace of fine sand with a few cobbles, tan to light brown.
255.0	260.0	Silt, trace of clay and fine to coarse sand, trace of gravel, tan to light brown.
260.0	265.0	Grades without clay.
265.0	285.0	Silt, trace of very fine sand, tan to light brown.
285.0	290.0	Grades clayey.
290.0	300.0	Grades without clay.
300.0	310.0	Silt, trace of fine to coarse sand, trace of gravel, tan to light brown.
310.0	315.0	Silt, clayey, some fine to coarse sand, trace of gravel, tan to light brown.
315.0	320.0	Clay, silty, trace of gravel, light to medium brown.
320.0	330.0	Gravel, fine and clayey, some medium to coarse sand, tan to light brown.
330.0	335.0	Grades with more clay.
335.0	345.0	Silt, some fine to very coarse sand, trace of gravel, tan to light brown.
345.0	350.0	Sand, silty fine to coarse grained, tan to light brown.
350.0	355.0	Silt, trace of very fine sand, tan to light brown.
355.0	360.0	Gravel, silty, some fine to very coarse sand, tan to light brown.
360.0	365.0	Silt, some fine to medium sand, trace of gravel, tan to light brown.
365.0	370.0	Gravel, silty, some fine to coarse sand, tan to light brown.
370.0	375.0	Grades with more silt.
375.0	380.0	Gravel, silty with fine to coarse sand.
380.0	385.0	Grades less gravel, siltier.
385.0	390.0	Grades clayey.

REMARKS: Boring P253B had 8 inch casing advanced to total depth during drilling. Boring P253A had 8 inch casing advanced to 120 feet during drilling.

WELL CONSTRUCTION DATA:

WELL P253B
Location: Kennecott Coordinate; N. E.
Township & Range Coordinates; SW 1/4 NW 1/4 SW 1/4 of Sec. 15 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; ft. Top of casing; ft.
Completion Date: 5/28/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 390.0 feet.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 365.0 feet.

Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 365.0 to 385.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 345.4 ft. to 390.0 feet.
Bentonite Seal: Depth; from 339.0 to 345.4 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 339.0 ft.

ADDITIONAL DATA:

Static water level: Date; 5/30/86
Depth; 51.07 feet below top of casing
Elevation; ft.
Chemistry: Date; 5/30/86
pH; 8.13 Sp. cond. 700 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P253A
Location: Kennecott Coordinate; N. E.
Township & Range Coordinates; SW 1/4 NW 1/4 SW 1/4 of Sec. 15 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 6/06/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 135.0 ft.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 115.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 115.0 to 135.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 108 ft. to total depth.
Bentonite Seal: Depth; from 100.8 to 108.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 100.8 ft.

ADDITIONAL DATA:

Static water level: Date; 6/25/86
Depth; 47.11 feet below top of casing
Elevation; . ft.
Chemistry: Date; 6/09/86
pH; 7.65 Sp. cond. 2800 micromhos/cm.
Temperature; 16.5 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE # P254

GEOLOGIC LOG: P254B

Depths (in feet) from	to	
0.0	5.0	Gravel, silty with some coarse to very coarse sand and a few cobbles, light to medium brown.
5.0	10.0	Grades very dark brown without cobbles.
10.0	15.0	Gravel, silty with cobbles and some very coarse sand, dark brown.
15.0	20.0	Gravel, silty with nearly equal amounts of fine to coarse grained sand, light to medium brown.
20.0	25.0	Sand, fine to very coarse, silty, some gravel and a trace of clay, light to medium brown.
25.0	30.0	Sand, fine to medium grained, clayey, trace of gravel, light to medium brown.
30.0	35.0	Silt, trace of very fine to fine grained sand, few cobbles, light to medium yellow brown.
35.0	40.0	Grades with some clay.
40.0	45.0	Silt, clayey, some very fine to fine grained sand and a few cobbles, light to medium yellow brown.
45.0	50.0	Sand, very fine to fine grained, silty, few cobbles light to medium yellow brown.
50.0	55.0	Grades without cobbles.
55.0	60.0	Sand, medium to very coarse, silty with some gravel light brown.
60.0	65.0	Grades with a trace of clay.
65.0	70.0	Gravel, sandy fine to coarse grained, some silt, medium brown.
70.0	85.0	Clay, silty, some coarse sand, trace of gravel, medium to dark gray.
85.0	90.0	Grades with more gravel.
90.0	100.0	Gravel, sandy fine to coarse, some cobbles, trace silt, light yellow brown.
100.0	110.0	Grades with more silt.
110.0	115.0	Sand, silty fine to coarse grained, trace of gravel, light yellow brown.
115.0	120.0	Grades with more silt and some gravel.
120.0	125.0	Clay, sandy fine to coarse grained, some gravel, medium brown.
125.0	130.0	Gravel, clayey with fine to coarse sand, medium brown.
130.0	135.0	Sand, medium to coarse grained, silty with some gravel, light to medium yellow brown.
135.0	140.0	Clay, sandy medium to coarse grained, light to medium yellow brown.
140.0	150.0	Grades without gravel.
150.0	160.0	Gravel, sandy fine to coarse grained, silty, light to medium yellow brown.
160.0	165.0	Grades with more silt.
165.0	170.0	Silt, sandy fine to coarse grained, trace gravel, light pinkish brown.
170.0	175.0	Silt, some fine sand, trace of clay, light pinkish brown.
175.0	180.0	Silt, fine to coarse sand, some gravel, light to medium yellow brown.
180.0	185.0	Sand, very fine to very coarse grained, silty with some gravel, light to medium yellow brown.
185.0	190.0	Silt, some clay, trace of coarse sand, light to medium yellow brown.
190.0	195.0	Gravel and clay, some fine to very coarse sand,

		light to medium yellow brown.
195.0	200.0	Clay, sandy fine to coarse grained, some gravel and silt, light to medium yellow brown.
200.0	205.0	Gravel, sandy fine to coarse grained, some silt, light to medium yellow brown.
205.0	210.0	Sand, very coarse, trace of gravel, light to medium yellow brown.
210.0	215.0	Gravel, silty, some fine to coarse grained sand, light to medium yellow brown.
215.0	225.0	Clay, silty, some fine to coarse sand, light to medium yellow brown.
225.0	240.0	Silt, trace of very fine sand, trace of clay, medium brown.
240.0	245.0	Silt, clayey with some gravel and a trace of fine sand, medium brown.
245.0	255.0	Grades with less gravel.
255.0	260.0	Clay, silty with a trace of fine to coarse sand and a trace of gravel, medium brown.
260.0	265.0	Grades without gravel.
265.0	275.0	Clay, silty with a trace of fine sand,medium brown.
275.0	280.0	Silt, clayey with a trace of fine sand, medium brown.
280.0	285.0	Clay, silty with some gravel, trace of fine sand, medium brown.
285.0	290.0	Clay, silty with a trace of medium to coarse sand, medium brown.
290.0	295.0	Grades with a trace of gravel.
295.0	300.0	Clay, trace of coarse sand, medium brown.
300.0	315.0	Silt, clayey with a trace of fine to medium grained sand and a trace of gravel, medium brown.
315.0	320.0	Clay, silty with some gravel and some fine to coarse grained sand, medium brown.
320.0	325.0	Gravel, silty with some fine to coarse sand and trace of clay, medium brown.
325.0	330.0	Silt, clayey with some gravel and a trace of fine to medium grained sand, medium brown.
330.0	340.0	Clay, silty with a trace of fine sand, medium brown.
340.0	345.0	Gravel, sandy fine to coarse grained and silty, medium brown.
345.0	350.0	Sand, fine to very coarse, silty with some gravel, medium brown.
350.0	355.0	Clay, silty with a trace of fine sand,medium brown.
355.0	360.0	Clay, silty with a trace of gravel, medium brown.
360.0	365.0	Grades without gravel.
365.0	370.0	Clay, silty with a trace of gravel.
370.0	375.0	Silt, clayey with some fine to coarse sand, trace gravel, light to medium tan to brown.
375.0	380.0	Clay, silty with some fine to coarse sand, trace of gravel, light to medium brown.
380.0	387.0	Silt, sandy fine to coarse grained, some gravel and a trace of clay, light to medium brown.

REMARKS: Boring P254B had 8 inch casing advanced to 282 feet below ground surface during drilling. Casing abandoned from 30 to 108 feet below grade during completion. Boring P254A had 8 inch casing advanced to total depth, and abandoned from 130 feet to ground surface.

WELL CONSTRUCTION DATA:

WELL P254B

Location: Kennecott Coordinate; N. 12412.505 E. 48222.322
Township & Range Coordinates; NE 1/4 NE 1/4 NE 1/4 of Sec. 19 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 4756.90 ft. Top of casing; 4759.68 ft.
Completion Date: 1/29/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 387.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 335.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 335.0 to 355.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 323.2 ft. to 365.0 depth.
Grout Back: Coarse bentonite rock from 365.0 ft. to 387.0 ft. below ground level.
Bentonite Seal: Depth; from 317.2 to 321.2 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 317.2 ft.

ADDITIONAL DATA:

Static water level: Date; 2/07/86
Depth; 156.80 feet below top of casing
Elevation; 4602.88 ft.
Chemistry: Date; 2/02/86
pH; 8.41 Sp. cond. 700 micromhos/cm.

COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P254A
Location: Kennecott Coordinate; N. 12410.708 E. 48199.494
Township & Range Coordinates; NE 1/4 NE 1/4 NE 1/4 of Sec. 19 Twp. 3 S Rge. 1 W S.L.B.M.
Elevation: Ground; 4758.00 ft. Top of casing; 4760.60 ft.
Completion Date: 3/31/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 217.0 ft.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 197.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 197.0 to 217.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 185.5 ft. to total depth.
Bentonite Seal: Depth; from 180.5 to 185.5 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 180.5 ft.

ADDITIONAL DATA:

Static water level: Date; 4/18/86
Depth; 159.54 feet below top of casing

Elevation; 4601.06 ft.

Chemistry: Date; 4/01/86
pH; 7.53 Sp. cond. 3250 micromhos/cm.
Temperature; 13.2 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE # P255

GEOLOGIC LOG: P255B

Depths (in feet) from	to	
0.0	5.0	Silt, clayey, trace of coarse sand and gravel, light to medium gray.
5.0	10.0	Clay, silty with some gravel, trace of fine to coarse sand, light to medium gray.
10.0	15.0	Silt, some gravel, trace of fine sand and clay, light to medium gray brown.
15.0	20.0	Silt, sandy fine to coarse, some gravel, light to medium gray brown.
20.0	25.0	Grades with more sand and gravel, trace of cobbles.
25.0	30.0	Sand, silty, fine to coarse, some gravel, light to medium gray brown.
30.0	35.0	Grades with more silt, medium yellow brown.
35.0	45.0	Sand, silty medium to coarse, some gravel, dark yellow brown.
45.0	50.0	Sand, clean, fine to coarse, some fine gravel, medium brown.
50.0	55.0	Silt, sandy fine to coarse, trace of gravel, medium pinkish brown.
55.0	60.0	Gravel, very fine, well sorted, clean, medium brown.
60.0	65.0	Sand, silty fine to coarse, some gravel, medium brown.
65.0	70.0	Gravel, fine, silty with some fine to coarse sand, medium brown.
70.0	75.0	Gravel, silty fine to coarse sand, trace of clay, medium brown.
75.0	80.0	Silt, cobbles, trace of fine to medium sand, medium brown.
80.0	83.0	Clay, medium yellow brown.
83.0	85.0	Gravel, silty, some medium to coarse sand, medium brown.
85.0	90.0	Silt, sandy fine to coarse, trace of gravel, medium brown.
90.0	95.0	Gravel, trace of medium to coarse sand, trace of silt, medium brown.
95.0	97.0	Clay, medium brown.
97.0	100.0	Gravel, silty, some fine to coarse sand, medium brown.
100.0	105.0	Sand, very fine, trace of silt, medium brown.
105.0	115.0	Sand, very fine to fine, some silt, trace of gravel, medium brown.
115.0	120.0	Gravel, very fine, trace of fine to coarse sand, medium brown.
120.0	130.0	Gravel, silty, some fine to coarse sand, thin sandy clay stringers, medium brown.
130.0	135.0	Gravel, clayey, some fine to very coarse sand, medium brown.
135.0	140.0	Grades silty without clay.
140.0	145.0	Gravel, very silty, some clay, trace of fine sand, weakly cemented, medium brown.
145.0	152.0	Sand, fine to medium grained, clayey, well sorted, medium brown.
152.0	157.0	Clay, some gravel, trace of medium to coarse sand, medium brown.
157.0	160.0	Gravel, silty, some fine to coarse sand, medium brown.

REMARKS: Boring P255A and P255B had 8 inch casing advanced to total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P255B
Location: Kennecott Coordinate; N. 4530.644 E. 46486.374
Township & Range Coordinates; NE 1/4 NW 1/4 SE 1/4
of Sec. 30 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4683.00 ft. Top of casing; 4685.31 ft.
Completion Date: 6/24/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 160.0 feet,
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 125.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 125.0 to 145.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 118.0 ft. to 150.0 feet.
Grout Back: Boring grouted back from 160.0 to 150.0 with coarse bentonite.
Bentonite Seal: Depth; from 113.0 to 118.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 103.0 ft.

ADDITIONAL DATA:

Static water level: Date; 6/25/86
Depth; 15.75 feet below top of casing
Elevation; 4669.56 ft.
Chemistry: Date; 6/24/86
pH; 8.08 Sp. cond. 700 micromhos/cm.
Temperature; 25.2 degrees C.
COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL 255A
Location: Kennecott Coordinate; N. 4530.925 E. 46464.244
Township & Range Coordinates; NE 1/4 NW 1/4 SE 1/4
of Sec. 30 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4683.70 ft. Top of casing; 4685.80 ft.
Completion Date: 6/25/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable Tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. to 60 feet.
Boring depth: 60.0 feet.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 40.0 feet.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 40.0 to 60.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand

Depth; from 34.9 ft. to total depth.
Bentonite Seal: Depth; from 30.0 to 34.9 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 30.0 ft.

ADDITIONAL DATA:

Static water level: Date; 6/25/86
Depth; 17.52 feet below top of casing
Elevation; 4668.28 ft.
Chemistry: Date; 6/24/86
pH; 7.57 Sp. cond. 2200 micromhos/cm.

SITE P256

GEOLOGIC LOG: P256

Depths (in feet) from	to	
0.0	5.0	Silt, sandy, fine to medium grained with some gravel, medium gray to tan.
5.0	10.0	Gravel, silty, some fine to coarse grained sand, trace of clay, medium gray to tan.
10.0	15.0	Silt, some gravel, trace of fine sand, medium gray to tan.
15.0	20.0	Sand, fine to medium grained, silty with some gravel, light brown to tan.
20.0	25.0	Silt, trace of fine sand, trace of gravel, tan to medium brown.
25.0	30.0	Grades with some cobbles and more gravel.
30.0	40.0	Grades with some clay.
40.0	45.0	Gravel, silty, well sorted, tan to light yellow brown.
45.0	50.0	Grades with some coarse sand.
50.0	55.0	Sand, fine grained, well sorted, medium brown.
55.0	65.0	Gravel, silty, some coarse sand, medium yellow brown.
65.0	70.0	Grades with some fine to coarse grained sand and a trace of clay, medium pinkish brown.
70.0	80.0	Grades without trace of clay, medium yellow brown.
80.0	85.0	Sand, medium to coarse grained, some gravel, medium yellow brown.
85.0	100.0	Gravel, silty with some fine to coarse sand, medium yellow brown.
100.0	110.0	Grades with more coarse to very coarse sand.
110.0	115.0	Grades with some finer sand.
115.0	120.0	Sand, silty, fine to very coarse with some gravel, trace of clay, tan to medium yellow brown.
120.0	125.0	Grades fine, clean and well sorted.
125.0	130.0	Gravel, silty with some fine to very coarse sand, tan to medium yellow brown.
130.0	135.0	Grades with thin layers of sandy clay.
135.0	140.0	Grades with more sand.
140.0	145.0	Sand, very fine to fine grained, trace of silt, tan to medium brown.
145.0	150.0	Gravel, silty with some medium to coarse sand, tan to medium brown.
150.0	155.0	Sand, very fine grained, tan to medium brown.
155.0	165.0	Sand, very fine to coarse, some gravel, tan to medium brown.
165.0	170.0	Gravel, silty with fine to very coarse sand, tan to medium brown.
170.0	175.0	Sand, silty, medium to coarse grained tan to medium brown.
175.0	180.0	Gravel, silty, some fine to very coarse sand, trace of clay, tan to medium brown.
180.0	185.0	Grades without clay, grades with more sand.
185.0	190.0	Silt, some gravel with some fine to coarse sand, some clay, tan to medium brown.
190.0	195.0	Grades less gravel and without clay.
195.0	200.0	Clay, silty with some gravel, trace of fine sand, light pinkish brown.
200.0	205.0	Gravel, silty with fine to very coarse sand, tan to medium brown.

205.0	210.0	Sand, silty, fine to very coarse, trace gravel, tan to medium brown.
210.0	215.0	Gravel, silty with some fine to coarse sand, tan to medium brown.
215.0	220.0	Sand, medium to coarse grained, tan to medium brown.
220.0	225.0	Clay, silty with some fine to medium grained sand, tan to medium brown.
225.0	230.0	Gravel, some fine to very coarse sand, some clay, tan to medium brown.
230.0	235.0	Grades without clay.
235.0	240.0	Gravel, silty with fine to coarse grained sand, tan to medium brown.
240.0	245.0	Grades siltier.
245.0	265.0	Gravel, silty with fine to coarse grained sand, trace of clay, light yellow brown.
265.0	278.0	Clay, silty, trace of gravel and fine sand, light yellow brown.

REMARKS: Boring P256 had casing advanced to total depth during drilling. Gravels encountered during drilling were compositionally between 70 to 80 percent light colored quartzites, and 20 to 30 percent dark gray andesite, andesite porphyry, and assorted volcanic gravels.

WELL CONSTRUCTION DATA:

WELL P256

Location: Kennecott Coordinate; N. 7217.967 E. 48342.755
Township & Range Coordinates; SW 1/4 SW 1/4 SW 1/4 of Sec. 20 Twp. 3 S. Rge. 1 W. S.L.B.M.
Elevation: Ground; 4640.30 ft. Top of casing; 4641.98 ft.
Completion Date: 4/8/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 278.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 240.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 240 to 260 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 227.0 ft. to total depth.
Bentonite Seal: Depth; from 222.0 to 227.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 222.0 ft.

ADDITIONAL DATA:

Static water level: Date; 4/18/86
Depth; 28.35 feet below top of casing
Elevation; 4613.63 ft.
Chemistry: Date; 4/22/86
pH; 7.75 Sp. cond. 950 micromhos/cm.
Temperature; 20.6 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE P257

GEOLOGIC LOG: P257

Depths (in feet) from	to	
0.0	5.0	Clay, silty, trace of very fine sand, dark brown.
5.0	10.0	Silt, trace of very fine sand, medium brown.
10.0	15.0	Grades with a trace of gravel.
15.0	20.0	Grades with more gravel.
20.0	25.0	Gravel, very fine to coarse, silty, trace of fine to coarse sand, thin clay stringer, medium brown.
25.0	30.0	Silt, some gravel, trace of fine to coarse sand, medium yellow brown.
30.0	35.0	Grades with less gravel.
35.0	40.0	Gravel, silty, some medium to very coarse sand, medium yellow brown.
40.0	45.0	Grades siltier.
45.0	50.0	Grades with more fine to coarse sand.
50.0	55.0	Sand, silty fine to coarse grained, some gravel, medium yellow brown.
55.0	60.0	Gravel, clean, some medium to very coarse sand, medium yellow brown.
60.0	65.0	Sand, medium to very coarse, very silty, some gravel, medium yellow brown.
65.0	70.0	Gravel, very coarse, some fine to very coarse sand, trace of silt, medium yellow brown.
70.0	80.0	Grades more fine to very coarse sand, tan to light brown.
80.0	85.0	Sand, very silty, medium to coarse grained, few cobbles, some gravel, tan to light brown.
85.0	90.0	Silt, sandy fine to coarse, some gravel, medium brown.
90.0	95.0	Sand, coarse grained, very clean, well sorted, medium brown.
95.0	100.0	Grades silty with some fine gravel.
100.0	105.0	Clay, some medium to coarse sand, some gravel, medium brown.
105.0	110.0	Clay, silty, some gravel, trace of medium to coarse sand, medium brown.
110.0	115.0	Gravel, coarse and silty, some fine to coarse sand, medium brown.

REMARKS: Boring P257 had 8 inch casing advanced to total depth during drilling.

WELL CONSTRUCTION DATA:

WELL P257

Location: Kennecott coordinates: N. 6653.765 E. 46176.564
Township & Range Coordinates; NW 1/4 NW 1/4 NE 1/4 of Sec. 30 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4686.50 ft. Top of casing; 4688.80 ft.
Completion Date: 7/31/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 115.0 ft.

Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 70.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 70 to 90 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 65.0 ft. to 95.0 ft.
Grout back: Boring grouted back with coarse bentonite from 115.0 to 95.0 ft.
Bentonite Seal: Depth; from 60.0 to 65.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 60.0 ft.

ADDITIONAL DATA:

Static water level: Date; 8/21/86
Depth; 16.03 feet below top of casing
Elevation; 4672.77 ft.
Chemistry: Date; 7/31/86
pH; 7.90 Sp. cond. 4600 micromhos/cm.
Temperature; 24.0 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE # P258

GEOLOGIC LOG: P258B

Depths (in feet)

from	to	
0.0	10.0	Clay, silty, medium gray brown.
10.0	15.0	Silt, trace of clay, light to medium gray brown.
15.0	20.0	Gravel, some cobbles, trace of fine sand, medium brown.
20.0	25.0	Silt, trace of gravel, trace of fine sand, medium brown.
25.0	30.0	Sand, very silty, fine to coarse grained, some gravel, medium brown.
30.0	35.0	Grades with less silt and a few cobbles.
35.0	40.0	Gravel, very fine, silty, some fine to very coarse sand, medium yellow brown.
40.0	45.0	Grades coarser with a few cobbles.
45.0	50.0	Grades with less silt.
50.0	55.0	Gravel, very silty, some fine to very coarse sand, medium to dark blue gray.
55.0	60.0	Silt, some very fine sand, trace of gravel, trace of carbonate clay, medium to dark blue gray.
60.0	65.0	Grades with more gravel and carbonate clay.
65.0	70.0	Sand, very silty, very fine to medium grained, trace of fine gravel, medium to dark blue gray.
70.0	75.0	Sand, silty fine to very coarse, some gravel, few cobbles, medium yellow brown.
75.0	80.0	Gravel, very silty, some fine to very coarse sand, light greenish yellow brown.
80.0	85.0	Grades with more fine to coarse sand.
85.0	90.0	Grades with more gravel, medium yellow brown.
90.0	95.0	Clay, silty, trace of fine gravel, light to medi pinkish brown.
95.0	100.0	Gravel, silty, some fine to coarse sand, light to medium pinkish brown.
100.0	105.0	Silt, some clay and gravel, trace of fine to coarse sand, light to medium pinkish brown.
105.0	110.0	Gravel, some silt, trace of fine to very coarse sand, light to medium pinkish brown.
110.0	115.0	Gravel, very silty with a trace of clay, light to medium pinkish brown.
115.0	125.0	Clay, some silt, trace of very fine gravel, trace of fine sand, light to medium pinkish brown.
125.0	130.0	Gravel, very fine, very silty, trace of medium to coarse sand, light to medium pinkish brown.
130.0	135.0	Silt, clayey, trace of fine gravel, trace of fine to coarse sand, light to medium pinkish brown.
135.0	140.0	Sand, very silty, fine to medium grained, some gravel, trace of clay and cobbles, tan to light brown.
140.0	145.0	Grades less silty without clay.
145.0	155.0	Sand, very fine to medium grained, very silty, some fine gravel, trace of clay, tan to light brown.
155.0	160.0	Sand, fine to medium grained, some silt, some gravel, tan to light brown.
160.0	165.0	Gravel, very fine to fine, some fine to very coarse sand, trace of silt, tan to light brown.
165.0	175.0	Silt, clayey, trace of fine to coarse sand, trace of gravel, tan to light brown.
175.0	180.0	Clay, silty, trace of fine to coarse sand, trace of gravel, tan to light brown.

180.0	190.0	Clay, silty, trace of very fine gravel, tan to light brown.
190.0	195.0	Grades siltier with trace of very fine gravel.
195.0	200.0	Clay, trace of very fine sand, trace of gravel, dark yellow brown.
200.0	205.0	Grades with more gravel.
205.0	210.0	Clay, sandy fine to coarse, trace of gravel, medium to dark brown.
210.0	215.0	Sand, clayey, medium to coarse grained, some fine gravel, medium to dark brown.
215.0	220.0	Grades with less gravel.
220.0	225.0	Sand, silty, fine to coarse, some fine gravel, trace of clay, medium to dark brown.
225.0	230.0	Sand, silty, medium to very coarse, some gravel, medium to dark brown.
230.0	235.0	Gravel, silty, some fine to coarse sand, trace of clay, tan to light brown.

REMARKS: Boring P258B had 8 inch casing advanced to total depth during drilling. Boring P253A had 8 inch casing advanced to 90 feet during drilling. Water levels in P258B began flowing at the 65 foot depth, and dropped to approximately 10 feet below grade after the well was completed. Formation exhibited consolidation of sediments at approximately 205 feet below grade.

WELL CONSTRUCTION DATA:

WELL P258B

Location: Kennecott Coordinate; N. 19828.41 E. 64206.69
Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 11 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4394.3 ft. Top of casing; 4396.7 ft.
Completion Date: 12/10/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 235.0 feet.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 214.5 feet.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 214.5 to 234.5 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 209.0 ft. to 235.0 feet.
Bentonite Seal: Depth; from 204.0 to 209.0 ft. Two 50# bags coarse grind bentonite added above pellets.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 204.0 ft.

ADDITIONAL DATA:

Static water level: Date; 12/17/86
Depth; 10.40 feet below top of casing
Elevation; 4386.3 ft.
Chemistry: Date; 5/30/86
pH; 7.78 Sp. cond. 1900 micromhos/cm.
temperature; 16.8 degrees centigrade

COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P258A

Location: Kennecott Coordinate; N. 19848.67 E. 64206.84
Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 11 Twp. 3 S. Rge. 1 W S.L.B.M.
Elevation: Ground; 4393.9 ft. Top of Metal Casing; 4396.86 ft.
Completion Date: 12/17/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 90.5 ft.
Surface casing: Diameter; 8.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 67.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 67.0 to 87.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 63.0 ft. to total depth.
Bentonite Seal: Depth; from 58.0 to 63.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 58.0 ft.

ADDITIONAL DATA:

Static water level: Date;12/17/86
Depth; -9.08 ft.
Elevation; 4405.94 ft.
Chemistry: Date; 12/22/86
pH; 7.36 Sp. cond. 3300 micromhos/cm.
Temperature; 14.6 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE P261

GEOLOGIC LOG: P261

Depths (in feet) from	to	
0.0	5.0	Gravel, fine to coarse, trace of very coarse sand, medium yellow brown.
5.0	10.0	Grades clayey with some fine to very coarse sand.
10.0	15.0	Sand, silty fine to very coarse grained, some clay and gravel, medium yellow brown.
15.0	20.0	Gravel, silty, some fine to very coarse sand, trace of clay, medium yellow brown.
20.0	25.0	Grades without clay.
25.0	30.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
30.0	35.0	Grades with more fine to very coarse sand.
35.0	40.0	Gravel, fine, some fine to very coarse sand, some silt, medium yellow brown.
40.0	45.0	Silt, some fine gravel, trace of fine to medium sand, medium yellow brown.
45.0	50.0	Grades less sand and gravel.
50.0	55.0	Clay, silty, trace of coarse sand, trace of gravel, medium yellow brown.
55.0	60.0	Silt, some gravel, trace of fine sand, tan to light brown.
60.0	70.0	Gravel, very silty, some cobbles, some fine to very coarse sand, light to medium brown.
70.0	75.0	Grades without cobbles.
75.0	80.0	Gravel, very silty, some fine to very coarse sand, light to medium brown.
80.0	85.0	Gravel, some silt, some fine to very coarse sand, light to medium brown.
85.0	90.0	Clay, silty, some gravel, light to medium brown.
90.0	95.0	Gravel, silty, some fine to coarse sand, trace of clay, light to medium brown.
95.0	100.0	Clay, silty, some gravel, trace of coarse sand, light to medium brown.
100.0	105.0	Silt, clayey, trace of fine gravel, light to medium brown.
105.0	110.0	Silt, trace of fine sand, trace of fine gravel, light to medium brown.
110.0	115.0	Silt, clayey, trace of fine to very coarse sand, light to medium brown.
115.0	120.0	Sand, very silty, fine to coarse, some clay, trace of fine gravel, light to medium brown.

REMARKS: Boring P261 had casing advanced to 100 feet during drilling. Gravels encountered during drilling were compositionally between 70 to 80 percent light colored quartzites, and 20 to 30 percent dark gray andesite, andesite porphyry, and assorted volcanic gravels.

WELL CONSTRUCTION DATA:

WELL P261
Location: Kennecott Coordinate; N. 17739.40 E. 48244.30

Township & Range Coordinates; NE 1/4 NE 1/4 NE 1/4
of Sec. 18 Twp. 3 S. Rge. 1 W. S.L.B.M.
Elevation: Ground; 4689.4 ft. Top of casing; 4691.8 ft.
Completion Date: 10/21/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 120.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 100.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 100.0 to 120.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 95.0 ft. to total depth.
Bentonite Seal: Depth; from 89.9 to 95.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 89.9 ft.

ADDITIONAL DATA:

Static water level: Date;11/12/86
Depth; 80.45 feet below top of casing
Elevation; 4611.35 ft.
Chemistry: Date;10/21/86
pH; 7.76 Sp. cond. 1850 micromhos/cm.
Temperature; 13.8 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE P262

GEOLOGIC LOG: P262

Depths (in feet) from	to	
0.0	5.0	Clay, silty, trace of gravel, medium to dark brown.
5.0	15.0	Grades siltier, medium brown.
15.0	25.0	Silt, some clay, light to medium brown.
25.0	35.0	Clay, silty, light to medium yellow brown.
35.0	40.0	Silt, some fine to coarse sand, trace of gravel, trace of clay, light to medium yellow brown.
40.0	45.0	Sand, silty, fine to very coarse grained, some gravel, light to medium yellow brown.
45.0	50.0	Gravel, sandy fine to very coarse, trace of silt, light to medium yellow brown.
50.0	55.0	Grades silty.
55.0	60.0	Gravel, clayey, some very fine to very coarse sand, medium yellow brown.
60.0	65.0	Clay, sandy fine to very coarse, some gravel, medium yellow brown.
65.0	75.0	Gravel, very silty, some fine to very coarse sand, trace of clay, medium yellow brown.
75.0	85.0	Silt, sandy fine to coarse, some gravel, medium yellow brown.
85.0	90.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
90.0	95.0	Gravel, sandy fine to very coarse, some silt, medium yellow brown.
95.0	100.0	Gravel, very silty, fine to very coarse sand, some clay, medium yellow brown.
100.0	105.0	Sand, fine to very coarse, very silty, some gravel, medium yellow brown.
105.0	115.0	Grades with less silt.
115.0	120.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
120.0	130.0	Silt, sandy fine to very coarse, trace of gravel, medium yellow brown.
130.0	135.0	Sand, very silty, fine to very coarse, trace of gravel, medium yellow brown.
135.0	140.0	Gravel, silty, some cobbles and fine to very coarse sand, medium yellow brown.
140.0	145.0	Grades with a trace of clay.
145.0	155.0	Silt, sandy fine to coarse, trace of gravel, medium yellow brown.
155.0	160.0	Sand, silty, medium to very coarse grained, trace of gravel, medium yellow brown.
160.0	170.0	Silt, sandy very fine to coarse, trace of gravel, medium yellow brown.
170.0	175.0	Grades with more medium to coarse sand.
175.0	180.0	Sand, silty fine to very coarse, some gravel, medium yellow brown.
180.0	185.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
185.0	190.0	Silt, sandy fine to coarse, trace of gravel, trace of clay, medium yellow brown.
190.0	197.0	Gravel, sandy medium to coarse, few cobbles, clean, medium yellow brown.

REMARKS: Boring P262 had casing advanced to 197 feet during drilling. Gravels encountered during drilling were compositionally between 70 to 80 percent light colore quartzites, and 20 to 30 percent dark gray andesite, andesite porphyry, and assorted volcanic gravels.

WELL CONSTRUCTION DATA:

WELL P262
Location: Kennecott Coordinate; N. 9796.03 E. 50971.88
Township & Range Coordinates; NW 1/4 NW 1/4 SE 1/4 of Sec. 20 Twp. 3 S. Rge. 1 W. S.L.B.M.
Elevation: Ground; 4630.9 ft. Top of casing; 4633.82 ft.
Completion Date: 1/03/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 197.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 176.5 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 176.5 to 196.5 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 171.5 ft. to total depth.
Bentonite Seal: Depth; from 166.5 to 171.5 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 166.5 ft.

ADDITIONAL DATA:

Static water level: Date; 1/07/87
Depth; 172.50 feet below top of casing
Elevation; 4461.32 ft.
Chemistry: Date; 1/07/87
pH; 7.40 Sp. cond. 2300 micromhos/cm.
Temperature; 3.6 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

SITE P265

GEOLOGIC LOG: P265

Depths (in feet) from	to	
0.0	5.0	Silt, trace of very fine sand, light brown.
5.0	10.0	Gravel, boulders and cobbles, some fine to very coarse sand, medium brown.
10.0	15.0	Gravel, boulders, silty, some fine to very coarse sand, light brown to tan.
15.0	25.0	Sand, silty, medium to coarse grained, some fine gravel, tan to medium yellow brown.
25.0	30.0	Sand, very silty, very fine to fine grained, trace of gravel, tan to medium yellow brown.
30.0	35.0	Clay, silty, trace of gravel, tan to light brown.
35.0	40.0	Gravel, very silty, some fine to very coarse sand, trace of clay, tan to light brown.
40.0	45.0	Grades without clay.
45.0	55.0	Silt, clayey, some gravel, trace of fine to coarse sand, light to medium pinkish brown.
55.0	60.0	Gravel, very silty, some fine to coarse sand, light to medium pinkish brown.
60.0	70.0	Grades with some cobbles.
70.0	75.0	Grades with more silt.
75.0	80.0	Sand, very silty, medium to very coarse grained, some gravel, light to medium pinkish brown.
80.0	90.0	Silt, sandy fine to coarse grained, some gravel, light to medium pinkish brown.
90.0	95.0	Gravel, very silty, some fine to very coarse sand, light to medium pinkish brown.
95.0	100.0	Silt, clayey, some fine to very coarse sand, trace of gravel, light to medium pinkish brown.
100.0	105.0	Gravel, very silty, some fine to very coarse sand, light to medium pinkish brown.
105.0	110.0	Grades with a trace of clay.
110.0	115.0	Sand, very silty, fine to coarse grained, trace of clay, light to medium pinkish brown.
115.0	120.0	Gravel, very silty, some cobbles, some fine to coarse sand, light to medium pinkish brown.
120.0	125.0	Sand, very silty, fine to coarse grained, some gravel, light to medium pinkish brown.
125.0	135.0	Sand, very silty, medium to very coarse grained, some fine gravel, medium brown.
135.0	142.0	Gravel, very fine, some silt, some fine to very coarse sand, medium brown.

REMARKS: Boring P265 had casing advanced to total depth during drilling. Gravels encountered during drilling were compositionally between 60 to 80 percent dark gray andesite, andesite and latite porphyry, with 20 to 40 percent light colored quartzite gravels.

WELL CONSTRUCTION DATA:

WELL P265

Location: Kennecott Coordinate; N. . E. .
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 25 Twp. 3 S. Rge. 2 W. S.L.B.M.

Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 3/18/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 142.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 122.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 122.0 to 142.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 117.0 ft. to total depth.
Bentonite Seal: Depth; from 112.0 to 117.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 112.0 ft.

ADDITIONAL DATA:

Static water level: Date; 3/20/87
Depth; 111.92 feet below top of casing
Elevation; . ft.
Chemistry: Date; 3/19/87
pH; 7.72 Sp. cond. 2000 micromhos/cm.
Temperature; 12.8 degrees centigrade.

SITE P263

GEOLOGIC LOG: P263

Depths (in feet) from	to	
0.0	5.0	Silt, trace of very fine sand, medium brown.
5.0	10.0	Clay, silty, trace of very fine gravel, medium to dark gray brown.
10.0	20.0	Grades silty with some gravel, trace of fine to very coarse sand.
20.0	25.0	Gravel, very silty, some very fine to very coarse sand, trace of clay, tan to light brown.
25.0	35.0	Clay, silty, some fine to coarse sand, some gravel, tan to light brown.
35.0	40.0	Silt, clayey, some very fine to coarse sand, some very fine to fine gravel, medium yellow brown.
40.0	45.0	Gravel, very silty, some fine to very coarse sand, trace of clay, medium yellow brown.
45.0	50.0	Grades with more fine to very coarse sand.
50.0	55.0	Sand, very silty, medium to very coarse grained, some gravel, medium yellow brown.
55.0	60.0	Sand, medium to coarse, trace of silt, trace of gravel, well sorted, medium yellow brown.
60.0	70.0	Grades clayey.
70.0	80.0	Gravel, very fine to fine, some fine to very coarse sand, medium yellow brown.
80.0	85.0	Grades with some silt and cobbles, weakly cemented.
85.0	90.0	Grades without cobbles.
90.0	95.0	Gravel, sandy fine to very coarse, some cobbles, medium brown.
95.0	105.0	Grades with more fine to coarse sand.
105.0	115.0	Sand, medium to very coarse grained, some gravel, medium yellow brown.
115.0	125.0	Gravel, very fine, medium to very coarse sand, clean, medium yellow brown.
125.0	130.0	Sand, medium to very coarse grained, some gravel, trace of silt, medium yellow brown.
130.0	135.0	Gravel, silty, some fine to very coarse sand, medium brown.
135.0	140.0	Grades with more fine to very coarse sand.
140.0	150.0	Sand, medium to very coarse grained, some gravel, clean, medium brown.
150.0	155.0	Silt, some medium to coarse sand, trace of gravel, medium yellow brown.
155.0	165.0	Sand, medium to coarse grained, some silt, some gravel, medium yellow brown.
165.0	175.0	Sand, coarse to very coarse grained, some silt, some gravel, medium yellow brown.
175.0	180.0	Grades clean.
180.0	185.0	Sand, medium to very coarse grained, clean, medium yellow brown.
185.0	190.0	Grades finer.
190.0	195.0	Sand, fine to medium grained, some silt, medium yellow brown.
195.0	200.0	Gravel, fine to very coarse sand, clean, medium yellow brown.
200.0	205.0	Grades very silty with less sand.
205.0	210.0	Gravel, very silty, some fine to coarse sand, trace of clay, medium yellow brown.
210.0	215.0	Grades without clay.

215.0	220.0	Sand, silty, very coarse, some gravel, medium yellow brown.
220.0	225.0	Clay, silty, some fine to coarse sand, trace of gravel, medium yellow brown.
225.0	235.0	Gravel, some fine to very coarse sand, clean, medium yellow brown.
235.0	240.0	Grades with some silt and a trace of clay.
240.0	245.0	Sand, silty, medium to very coarse grained, some gravel, medium yellow brown.
245.0	255.0	Gravel, silty, some cobbles, medium to very coarse sand, medium yellow brown.
255.0	260.0	Silt, some medium to coarse sand, trace of clay, medium yellow brown.
260.0	265.0	Clay, silty, some gravel, trace of fine to coarse sand, medium yellow brown.
265.0	270.0	Grades with more fine to coarse sand and gravel.
270.0	275.0	Sand, clayey and silty, fine to very coarse grained, weak to moderately cemented, medium yellow brown.
275.0	280.0	Silt, clayey, some fine to very coarse sand, some gravel, moderately cemented, medium yellow brown.
280.0	285.0	Gravel, trace of medium to coarse sand, clean, medium yellow brown.
285.0	290.0	Silt, clayey, some fine to medium sand, some gravel, moderately cemented, tan to light brown.
290.0	295.0	Grades without sand and gravel.
295.0	305.0	Clay, silty, some fine to medium sand and gravel, moderately cemented, medium brown.
305.0	310.0	Gravel, silty, some fine to medium sand, moderately cemented, medium brown.
310.0	315.0	Grades siltier with less gravel.
315.0	320.0	Silt, some gravel, some fine to very coarse sand, moderately cemented, medium brown.
320.0	325.0	Gravel, sandy fine to very coarse, moderately cemented, medium brown.

REMARKS: Boring P263 had casing advanced to 270 feet during drilling. Gravels encountered during drilling were compositionally between 70 to 80 percent light colored quartzites, and 20 to 30 percent dark gray andesite, andesite porphyry, and assorted volcanic gravels. At approximately 270 feet below grade the formation encountered was consolidated and moderately cemented, and the gravel content chiefly consisted of 60 to 70 percent andesite porphyry, rhyolite porphyry, and latite porphyry, with 30 to 40 remaining percent quartzite.

WELL CONSTRUCTION DATA:

WELL P263

Location: Kennecott Coordinate; N. 7652.91 E. 46741.28
Township & Range Coordinates; SE 1/4 SE 1/4 SE 1/4 of Sec. 19 Twp 3S. Rge. 1W. S.L.B.M.
Elevation: Ground; 4682.3 ft. Top of casing; 4684.77 ft.
Completion Date: 2/02/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 325.0 ft.

Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 230.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 230.0 to 250.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 225.0 ft. to 260.0 foot depth.
Grout Back Boring: 325.0 feet to 260.0 feet using coarse grind bentonite.
Bentonite Seal: Depth; from 220.0 to 225.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 220.0 ft.

ADDITIONAL DATA:

Static water level: Date; 2/02/87
Depth; 52.85 feet below top of casing
Elevation; 4631.92 ft.
Chemistry: Date; 2/02/87
pH; 7.20 Sp. cond. 3500 micromhos/cm.
Temperature; 13.7 degrees centigrade.

SITE P266

GEOLOGIC LOG: P266

Depths (in feet) from	to	
0.0	5.0	Gravel, very silty, some coarse sand, medium brown.
5.0	15.0	Grades with a few cobbles.
15.0	20.0	Silt, clayey, some gravel, trace of coarse sand, medium brown.
20.0	25.0	Grades with trace of clay.
25.0	30.0	Grades with some clay.
30.0	40.0	Silt, some fine gravel, some fine to medium sand, light to medium brown.
40.0	45.0	Gravel, fine, silty, some fine to coarse sand, medium yellow brown.
45.0	50.0	Grades very silty.
50.0	55.0	Silt, clayey, some fine gravel, trace of fine to coarse sand, medium yellow brown.
55.0	60.0	Grades with more fine to coarse sand.
60.0	65.0	Gravel, very silty, some fine to coarse sand, trace of clay, medium yellow brown.
65.0	70.0	Silt, some clay, trace of fine gravel, light to medium brown.
70.0	75.0	Sand, very silty, fine to medium grained, some fine gravel, light to medium brown.
75.0	80.0	Grades less silt and grades medium to coarse grained.
80.0	85.0	Grades with more silt.
85.0	90.0	Gravel, some fine to coarse sand, trace of silt, light to medium brown.
90.0	100.0	Sand, very silty, fine to coarse grained, some gravel, light to medium brown.
100.0	105.0	Silt, sandy fine to coarse, trace of gravel, light to medium brown.
105.0	110.0	Sand, very silty, medium to coarse grained, light to medium brown.
110.0	115.0	Grades clayey.
115.0	120.0	Sand, very silty, medium to coarse grained, trace of gravel, light to medium brown.
120.0	130.0	Gravel, very fine, some coarse sand, trace of silt, light to medium brown.
130.0	140.0	Sand, very silty, fine to medium grained, medium yellow brown.
140.0	145.0	Silt, some fine to very coarse sand, trace of gravel, medium yellow brown.
145.0	150.0	Grades with more gravel.
150.0	155.0	Sand, medium to coarse grained, trace of silt, trace of gravel, medium to dark brown. Gravels to total depth consist primarily of volcanic detrital materials.
155.0	170.0	Sand, very silty, fine to coarse grained, trace of gravel, medium to dark brown.
170.0	175.0	Grades with less silt.
175.0	195.0	Gravel, sandy fine to very coarse, trace of silt, medium to dark brown.
195.0	200.0	Grades very silty.
200.0	205.0	Sand, fine to very coarse grained, silty with some gravel, medium to dark brown.
205.0	210.0	Gravel, some fine to very coarse sand, trace of silt, medium to dark brown.

210.0	215.0	Gravel, fine and well sorted, trace of fine sand, medium to dark brown.
215.0	220.0	Grades with more fine to coarse sand, medium to dark brown.
220.0	225.0	Grades with a trace of silt.
225.0	230.0	Gravel, very fine, trace of coarse sand, medium to dark brown.
230.0	235.0	Grades with a few cobbles.

REMARKS: Boring P266 had 8 inch casing advanced to total depth during drilling. Gravel compositions which were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus changed at 290 feet to become chiefly volcanic gravels consisting of andesite porphyry, andesite, and latite, medium to dark gray.

WELL CONSTRUCTION DATA:

WELL P266
Location: Kennecott Coordinate; N. 5097.98 E. 35275.70
Township & Range Coordinates; NW 1/4 SW1/4 NE 1/4 of Sec. 26 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 4913.5 ft. Top of casing; 4915.80 ft.
Completion Date: 11/20/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 235.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 215.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 215.0 to 235.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 209.0 to total depth.
Bentionite seal: Depth; from 204.0 to 209.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; 0 to 204.0 ft.

ADDITIONAL DATA:

Static water level: Date; 11/20/86
Depth; 204.02 feet below top of casing
Elevation; 4711.78 ft.

Chemistry: Date; 11/20/87
ph; 7.75 Sp. cond. 2300 micromhs/cm.

SITE P267

GEOLOGIC LOG: P267B

Depths (in feet) from	to	
0.0	5.0	Boulders, gravel, some fine to coarse sand, some clay, dark brown.
5.0	15.0	Gravel, clayey and silty, some fine to very coarse sand, dark brown.
15.0	20.0	Grades with some boulders.
20.0	25.0	Clay, silty with some fine to coarse sand, some gravel and boulders, light to medium brown.
25.0	30.0	Gravel, clayey, some medium to coarse sand, medium brown.
30.0	35.0	Grades with some silt.
35.0	40.0	Sand, silty, medium to coarse grained, some gravel, trace of clay, light to medium brown.
40.0	50.0	Sand, silty, fine to medium grained, some gravel, trace of clay, light to medium brown.
50.0	55.0	Grades clayey.
55.0	65.0	Silt, trace of fine gravel, trace of fine sand, tan to medium brown.
65.0	75.0	Gravel, silty, fine to coarse sand, light to medium brown.
75.0	80.0	Silt, sandy fine to very coarse, trace of gravel, light to medium brown.
80.0	85.0	Grades clayey.
85.0	95.0	Gravel, silty, fine to coarse sand, some clay, light to medium brown.
95.0	100.0	Silt, sandy fine to medium grained, trace of gra light to medium brown.
100.0	105.0	Sand, silty fine to very coarse grained, some gravel, light to medium brown.
105.0	110.0	Gravel, sandy medium to very coarse grained, silty, some clay, light to medium brown.
110.0	115.0	Sand, silty fine to very coarse grained, some gravel, medium to dark brown. Sand and gravel deposits from this depth are predominantly composed of volcanic detritus, cheifly andesite porphyry and hornblende andesite porphyry, with lesser amounts of hornblende latite porphyry, latite porphyry and quartzite.
115.0	125.0	Gravel, silty, some fine to coarse sand, medium to dark brown.
125.0	130.0	Grades with some clay.
130.0	140.0	Silt, sandy fine to coarse, trace of clay, medium to dark brown.
140.0	145.0	Gravel, sandy fine to very coarse, some silt, medium to dark brown.
145.0	150.0	Sand, clayey, fine to very coarse grained, medium to dark brown.
150.0	155.0	Grades with some boulders and cobbles.
155.0	160.0	Sand, very silty, fine to coarse grained, medium to dark brown.
160.0	165.0	Grades clayey.
165.0	170.0	Gravel, coarse to very coarse sand, clean, medium to dark brown.
170.0	175.0	Sand, very silty, medium to very coarse grained, some gravel, medium to dark brown.
175.0	185.0	Grades with more gravel.

185.0	190.0	Gravel, very fine, very silty, some medium to coarse sand, medium to dark brown.
190.0	195.0	Gravel, very fine to fine, some fine to very coarse sand, clean, medium to dark brown.
195.0	200.0	Silt, sandy fine to very coarse, some gravel, medium to dark brown.
200.0	205.0	Sand, very silty, medium to very coarse grained, some gravel and a few cobbles, medium to dark brown.
205.0	210.0	Grades without cobbles.
210.0	215.0	Sand, very silty, fine to very coarse grained, medium to dark brown.
215.0	220.0	Grades finer.
220.0	225.0	Gravel, some cobbles, some fine to very coarse sand medium to dark brown.
225.0	230.0	Gravel, trace of silt, fine to very coarse sand, clean, medium to dark brown.
230.0	235.0	Sand, very silty, fine to very coarse grained, trace of gravel, medium to dark brown.
235.0	245.0	Grades with more gravel.
245.0	250.0	Sand, medium to coarse grained, some silt, some gravel, medium to dark brown.
250.0	255.0	Sand, fine to very coarse grained, silty, trace of gravel, medium to dark brown.
255.0	260.0	Silt, sandy fine to very coarse grained, trace of gravel, medium to dark brown.
260.0	265.0	Sand, silty fine to very coarse grained, trace of gravel, medium to dark brown.
265.0	275.0	Sand, medium grained, some silt, medium to dark brown.
275.0	280.0	Grades with a trace of gravel.
280.0	285.0	Gravel, silty with cobbles and boulders, medium to dark brown.
285.0	290.0	Sand, silty , medium to very coarse grained, some gravel, medium to dark brown.
290.0	295.0	Sand, silty fine to very coarse, some gravel, medium to dark brown.
295.0	300.0	Gravel, some cobbles, some medium to coarse sand, medium to dark brown.
300.0	305.0	Gravel, some cobbles, some silty clay and medium to coarse sand, medium to dark brown.
305.0	310.0	Clay, some gravel and some cobbles, trace of medium to coarse sand, weak to moderately cemented, medium to dark brown.
310.0	315.0	Gravel, very coarse and rounded, some medium to coarse sand and silt, weak cement, medium to dark brown.
315.0	320.0	Sand, very coarse, some cobbles, some gravel, trace of silt, very weak cement, medium to dark brown.
320.0	325.0	Gravel, cobbles, clayey, some medium to coarse sand, medium to dark brown.
325.0	330.0	Gravel, sandy medium to coarse, medium to dark brown.
330.0	335.0	Sand, silty, medium to coarse grained, some gravel, medium to dark brown.
335.0	340.0	Grades with more gravel.

REMARKS: Boring P267B had 8 inch casing advanced to 308 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions which were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10

percent volcanic detritus changed at 115 feet to become chiefly volcanic gravels.

WELL CONSTRUCTION DATA:

WELL P267B
Location: Kennecott Coordinate; N. -215.15 E. 34120.65
Township & Range Coordinates; SW 1/4 SE 1/4 NW 1/4 of Sec. 35 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 4965.1 ft. Top of casing; 4967.75 ft.
Completion Date: 02/13/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 340.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 320.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 320.0 to 340.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 313.0 ft. to total depth.
Bentonite Seal: Depth; from 308.0 to 313.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 308.0 ft.

ADDITIONAL DATA:

Static water level: Date; 02/15/87
Depth; 125.65 feet below top of casing
Elevation; 4842.05 ft.
Chemistry: Date; 02/1587
pH; 8.18 Sp. cond. 1150 micromhos/cm.
Temperature; 5.4 degrees centigrade.
COMMENTS: Complete chemical analyses not yet available.

WELL CONSTRUCTION DATA:

WELL P267A
Location: Kennecott Coordinate; N.-220.97 E. 34110.15
Township & Range Coordinates; SW 1/4 SE 1/4 NW 1/4 of Sec. 35 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 4965.2 ft. Top of casing; 4967.86 ft.
Completion Date: 02/28/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 165.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 145.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 145.0 to 165.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 140.0 ft. to total depth.
Bentonite Seal: Depth; from 135.0 to 140.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 135.0 ft.

ADDITIONAL DATA:

Static water level: Date; 03/05/87
Depth; 122.58 feet below top of casing
Elevation; 4845.28 ft.

Chemistry: Date; 03/05/87
pH; 7.76 Sp. cond. 2640 micromhos/cm.
Temperature; 12.8 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE P268

GEOLOGIC LOG: P268

Depths (in feet) from	to	
0.0	5.0	Gravel, clayey and silty, trace of fine to coarse sand, (fill), dark gray brown.
5.0	10.0	silt, clayey, some gravel, trace of fine to coarse sand, medium gray brown.
10.0	15.0	Gravel, very silty, some fine to coarse sand, weakly cemented, light to medium brown.
15.0	20.0	Sand, clayey, medium to coarse grained, some gravel,weakly cemented, light to medium brown.
20.0	30.0	Grades with more gravel.
30.0	35.0	Sand, medium to coarse grained, some gravel and silt, light to medium brown.
35.0	40.0	Sand, medium to coarse grained, well sorted, trace of silt, weakly cemented, light to medium brown.
40.0	45.0	Grades finer.
45.0	50.0	Sand, clayey, very fine to fine, trace of fine gravel, light to medium brown.
50.0	55.0	Grades coarser.
55.0	65.0	Sand, very coarse, silty, trace of fine gravel.
65.0	70.0	Grades clayey.
70.0	80.0	Gravel, very fine, some medium to very coarse sand, trace of silt, light to medium brown.
80.0	90.0	Grades with more silt.
90.0	95.0	Gravel, very silty, some very fine to very coarse sand, light to medium brown.
95.0	100.0	Sand, very fine to fine grained, some gravel, tr of silt, light to medium brown.
100.0	105.0	Gravel, coarse, trace of fine to coarse sand, light to medium brown.
105.0	110.0	Grades silty with more fine to coarse sand.
110.0	115.0	Sand, fine to medium grained, some gravel and silt, light to medium yellow brown.
115.0	120.0	Gravel, silty, some fine to very coarse sand, light to medium yellow brown.
120.0	125.0	Grades with less sand.
125.0	130.0	Sand, silty, fine to very coarse grained, trace of gravel, medium brown.
130.0	135.0	Gravel, very silty, some cobbles, some fine to very coarse sand, medium brown. Gravels to total depth are composed primarily of volcanic detritus.
135.0	140.0	Gravel, very silty, some cobbles, some fine to sand, medium brown.
140.0	155.0	Gravel, silty, some fine to very coarse sand, medium brown.
155.0	160.0	Sand, very silty, fine to very coarse grained, some gravel, medium brown.
160.0	165.0	Gravel, silty, some fine to very coarse sand, medium brown.
165.0	170.0	Silt, sandy fine to coarsew, trace of fine gravel, medium brown.
170.0	175.0	Gravel, silty, some fine to very coarse sand, medium brown.
175.0	185.0	Grades with a few cobbles.
185.0	190.0	Sand, silty, medium to coarse grained, trace of gravel, medium brown.
190.0	195.0	Gravel, sandy fine to coarse, some silt, medium

		brown.
195.0	200.0	Grades with more fine to coarse sand.
200.0	205.0	Gravel, silty, some medium to very coarse sand, medium brown.
205.0	210.0	Grades siltier.
210.0	215.0	Gravel, clean, some very coarse sand, medium brown.
215.0	225.0	Gravel, some fine to coarse sand, trace of silt, medium brown.
225.0	230.0	Silt, some fine gravel, some fine to very coarse sand, medium brown.
230.0	240.0	Gravel, silty, some fine to very coarse sand, medium brown.

REMARKS: Boring P268 had 8 inch casing advanced to 230 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions which were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus changed at 135 feet to become chiefly volcanic gravels of andesitic composition.

WELL CONSTRUCTION DATA:

WELL P268

Location: Kennecott Coordinate; N. 7088.79 E. 27077.90
Township & Range Coordinates; NW 1/4 NW 1/4 NW 1/4 of Sec. 27 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5122.6 ft. Top of casing; 5124.97 ft.
Completion Date: 11/03/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 240.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 220.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 220.0 to 240.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 213.0 ft. to total depth.
Bentonite Seal: Depth; from 208.0 to 213.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 208.0 ft.

ADDITIONAL DATA:

Static water level: Date; 11/12/86
Depth; 210.8 feet below top of casing
Elevation; 4914.17 ft.
Chemistry: Date;11/12/86
pH; 7.84 Sp. cond. 2400 micromhos/cm.
Temperature; 7.7 degrees centigrade.

SITE P269

GEOLOGIC LOG: P269

Depths (in feet) from	to	
0.0	5.0	Gravel, clayey, some fine to very coarse sand, weakly cemented, medium to dark grayish brown.
5.0	10.0	Grades with more fine to coarse sand, weakly cemented.
10.0	15.0	Grades less clay, more silt, weakly cemented, medium grayish brown.
15.0	20.0	Gravel, fairly clean, some fine to coarse sand, weakly cemented, medium grayish brown.
20.0	25.0	Sand, clayey, medium to very coarse grained, some fine gravel, medium grayish brown.
25.0	30.0	Grades with less clay and more silt.
30.0	35.0	Sand, silty, medium to very coarse grained, some fine gravel, medium grayish brown.
35.0	40.0	Grades with trace of clay, weakly cemented.
40.0	50.0	Sand, clayey, medium to coarse grained, weak to moderately cemented, medium grayish brown.
50.0	55.0	Silt, sandy fine to coarse, trace of fine gravel, medium yellow brown.
55.0	60.0	Grades with more gravel.
60.0	65.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
65.0	70.0	Grades with less silt and some cobbles.
70.0	75.0	Silt, some fine to very coarse sand, trace of gravel, medium yellow brown.
75.0	85.0	Gravel, very silty, trace fine to very coarse sa medium to dark yellow brown. Gravels are volcanic detrital material, including andesite porphyry, light to medium gray, hornblende andesite porphyry, rhyolite, dark red and porphyritic, with lesser amounts of latite porphyry and monzonite porphyry, white to light gray. These gravels predominate to total depth.
85.0	90.0	Gravel, silty, fine to very coarse sand, medium to dark yellow brown.
90.0	95.0	Grades clayey.
95.0	100.0	Silt, some gravel, some fine to very coarse sand, medium to dark yellow brown.
100.0	105.0	Gravel, very silty, some fine to coarse sand, trace of clay, medium to dark yellow brown.
105.0	110.0	Grades less silt, more fine to coarse sand.
110.0	115.0	Gravel, some cobbles, some fine to very coarse sand, medium to dark yellow brown.
115.0	120.0	Grades siltier without cobbles.
120.0	130.0	Gravel, some coarse sand, trace of silt, medium to dark yellow brown.
130.0	135.0	Grades silty with some cobbles.
135.0	140.0	Gravel, sandy fine to coarse, some silt, medium to to dark yellow brown.
140.0	145.0	Grades very silty with a trace of clay.
145.0	150.0	Grades without clay.
150.0	155.0	Sand, fine to medium grained, some silt, trace of gravel, medium to dark yellow brown.

REMARKS: Boring P269 had casing advanced to total depth during

drilling. Gravels encountered during drilling were compositionally between 70 to 80 percent light colored quartzites, and 20 to 30 percent dark gray andesite, andesite porphyry, and assorted volcanic gravels to 75 feet. From 75 feet to total depth, gravels are primarily of volcanic detritus.

WELL CONSTRUCTION DATA:

WELL P269

Location: Kennecott Coordinate; N. 4693.66 E. 24442.78
Township & Range Coordinates; SW 1/4 SW 1/4 NE 1/4 of Sec. 28 Twp. 3 S. Rge. 2 W. S.L.B.M.
Elevation: Ground; 5186.4 ft. Top of casing; 5188.63 ft.
Completion Date: 10/23/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 155.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 135.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 135.0 to 155.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 129.9 ft. to total depth.
Bentonite Seal: Depth; from 124.8 to 129.9 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 124.8 ft.

ADDITIONAL DATA:

Static water level: Date;10/23/86
Depth; 112.95 feet below top of casing
Elevation; 5075.68 ft.
Chemistry: Date;10/23/86
pH; 7.42 Sp. cond. 2550 micromhos/cm.
Temperature; 14.1 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE P271

GEOLOGIC LOG: P271

Depths (in feet) from	to	
0.0	5.0	Gravel, sandy fine to very coarse, some silt, tan to light brown.
5.0	10.0	Silt, some gravel, trace of fine to coarse sand, medium reddish brown.
10.0	15.0	Grades with more fine to coarse sand, medium reddish brown.
15.0	35.0	Agglomerate, medium to dark gray brown, predominantly andesite porphyry, medium to dark gray, with lesser amounts of hornblende andesite porphyry and trace of dark gray andesite.
35.0	45.0	Grades with more non-welded tuffaceous matrix material.
45.0	65.0	Agglomerate, medium to dark gray brown, predominantly andesite porphyry, medium to dark gray; with lesser amounts of hornblende andesite porphyry and rhyolite, porphyritic, dark reddish brown.
65.0	85.0	Grades without rhyolitic inclusions.

REMARKS: Boring P271 had casing advanced to eleven feet, and was then drilled open to total depth.

WELL CONSTRUCTION DATA:

WELL P271

Location: Kennecott Coordinate; N. 2244.37 E. 18957.25
Township & Range Coordinates; SE 1/4 SE 1/4 SW 1/4 of Sec. 29 Twp. 3 S. Rge. 2 W. S.L.B.M.
Elevation: Ground; 5480.6 ft. Top of casing; 5483.08 ft.
Completion Date: 10/14/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 85.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 65.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 65.0 to 85.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 58.5 ft. to total depth.
Bentonite Seal: Depth; from 53.0 to 58.5 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 53.0 ft.

ADDITIONAL DATA:

Static water level: Date;10/16/86
Depth; 40.68 feet below top of casing
Elevation; 5442.4 ft.
Chemistry: Date;10/14/86
pH; 7.52 Sp. cond. 2600 micromhos/cm.
Temperature; 18.1 degrees centigrade.

SITE P272

GEOLOGIC LOG: P272

Depths (in feet) from	to	
0.0	25.0	Agglomerate , medium to dark gray brown, predominantly andesite porphyry, light to medium gray, with lesser amounts of rhyolite, dark red brown to maroon, porphyrytic, and andesite, dark gray.
25.0	30.0	Grades softer with more non-welded tuffaceous matrix material.
30.0	55.0	Agglomerate, medium to dark gray brown, predominantly andesite porphyry, medium gray, with lesser amounts of rhyolite, porphyritic, dark red brown, and andesite, dark gray. Interval is interbedded with softer units containing a greater percentage of non-welded tuffaceous matrix material.
55.0	105.0	Agglomerate, grades with more andesite, dark gray, and andesite porphyry, medium gray; grades with less rhyolite, porphyritic, dark red brown.

REMARKS: Boring P272 had casing advanced to two feet, and was drilled open.

WELL CONSTRUCTION DATA:

WELL P272

Location: Kennecott Coordinate; N. 3963.45 E. 16570.68
Township & Range Coordinates; NW 1/4 NW 1/4 SW 1/4 of Sec. 29 Twp. 3 S. Rge. 2 W. S.L.B.M.
Elevation: Ground; 5603.6 ft. Top of casing; 5606.14 ft.
Completion Date: 10/10/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 105.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 85.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 85.0 to 105.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 79.7 ft. to total depth.
Bentonite Seal: Depth; from 74.7 to 79.7 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 74.7 ft.

ADDITIONAL DATA:

Static water level: Date;10/23/86
Depth; 63.48 feet below top of casing
Elevation; 5542.66 ft.
Chemistry: Date; 10/15/86
pH; 7.03 Sp. cond. 2950 micromhos/cm.
Temperature; 19.8 degrees centigrade.

SITE P274

GEOLOGIC LOG: P274

Depths (in feet) from	to	
0.0	5.0	Clay, silty, trace of gravel, weakly cemented, dark brown.
5.0	10.0	Silt, clayey, some clay, volcanic ash, trace of medium to coarse sand, trace of gravel, weakly cemented, tan to light brown.
10.0	15.0	Gravel, silty, some medium to coarse sand, weakly cemented, tan to light brown.
15.0	25.0	Grades less silt, more fine to coarse sand.
25.0	30.0	Gravel, silty with fine to coarse sand, tan to light brown.
30.0	35.0	Sand, silty, medium to very coarse, some fine gravel, tan to light brown.
35.0	40.0	Silt, some gravel, trace of fine to very coarse sand, tan to medium brown.
40.0	45.0	Silt, trace of fine gravel, trace of fine sand, tan to medium brown.
45.0	55.0	Silt, clayey, trace of coarse sand, tan to medium brown.
55.0	60.0	Grades with a trace of fine gravel.
60.0	70.0	Grades with more gravel.
70.0	75.0	Silt, some fine gravel, trace of fine to coarse sand, tan to medium brown.
75.0	80.0	Sand, very silty, some gravel, tan to medium brown.
80.0	85.0	Grades less silt.
85.0	90.0	Silt, some gravel, trace of fine sand, medium brown.
90.0	95.0	Grades with trace of clay.
95.0	100.0	Grades without trace of clay.
100.0	105.0	Silt, some fine gravel, trace of fine sand, medium brown.
105.0	110.0	Gravel, very silty, some fine to very coarse sand, medium brown.
110.0	115.0	Grades clayey.
115.0	120.0	Gravel, silty, some fine to very coarse sand, medium brown.
120.0	125.0	Grades with less silt.
125.0	130.0	Sand, medium to very coarse, some gravel, trace of silt, medium yellow brown.
130.0	135.0	Grades without gravel.
135.0	145.0	Sand, fine to very coarse, some fine gravel, trace of clay, medium yellow brown.
145.0	150.0	Gravel, some fine to very coarse sand, trace of silt, medium yellow brown.
150.0	165.0	Sand, medium to coarse grained, clean with some fine gravel, medium yellow brown.
165.0	170.0	Grades with some clay.
170.0	175.0	Sand, fine to very coarse grained, clayey with some gravel, medium yellow brown.
175.0	180.0	Clay, trace of fine to medium sand, trace of fine gravel, medium yellow brown.
180.0	185.0	Gravel, silty, fine to very coarse sand, medium yellow brown.
185.0	195.0	Grades with sandy clay layers.
195.0	200.0	Gravel, fine, silty fine to very coarse sand, trace of clay, medium yellow brown.

200.0	210.0	Grades with more fine to very coarse sand.
210.0	215.0	Sand, medium to very coarse grained, medium yellow brown.
215.0	220.0	Grades silty.
220.0	225.0	Gravel, silty, fine to very coarse sand, medium yellow brown.
225.0	235.0	Grades less silty.
235.0	245.0	Gravel, some silt, some fine to very coarse sand, medium yellow brown.
245.0	255.0	Grades with more silt.
255.0	260.0	Sand, fine to very coarse, some gravel, medium yellow brown.
260.0	270.0	Grades siltier.
270.0	280.0	Silt, sandy fine to coarse, some gravel, trace of clay, medium brown.
280.0	285.0	Clay, silty, some very coarse gravel, medium brown.
285.0	290.0	Silt, clayey, trace of gravel, medium brown.
290.0	295.0	Gravel, silty, trace of medium to coarse sand, medium brown. Gravels are primarily volcanic, consisting of dark gray andesites and light to dark gray andesite porphyry.
295.0	300.0	Grades with a trace of clay.
300.0	305.0	Grades with less silt.

REMARKS: Boring P274 had 8 inch casing advanced to 300 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions which were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus changed at 290 feet to become chiefly volcanic gravels, predominantly of andesitic composition.

WELL CONSTRUCTION DATA:

WELL P274

Location: Kennecott Coordinate; N. 12392.19 E. 22174.55
Township & Range Coordinates; NW 1/4 NW 1/4 NW 1/4 of Sec. 21 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; 5335.7 ft. Top of casing; 5338.19 ft.
Completion Date: 10/06/86
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 305.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 285.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 285.5 to 305.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 278.1 ft. to total depth.
Bentonite Seal: Depth; from 272.8 to 278.1 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 272.8 ft.

ADDITIONAL DATA:

Static water level: Date; 10/16/86

Depth; 246.70 feet below top of casing
Elevation; 5091.49 ft.

Chemistry: Date;10/06/86
pH; 8.11 Sp. cond. 950 micromhos/cm.
Temperature; 17.1 degrees centigrade.

SITE P270

GEOLOGIC LOG: P270

Depths (in feet) from	to	
0.0	5.0	Clay, silty, dark brown.
5.0	10.0	Silt, some very fine to fine sand, trace of fine gravel, dark brown.
10.0	15.0	Gravel, silty, some fine to coarse sand, dark brown.
15.0	20.0	Clay, silty, some fine to very coarse sand, some gravel, medium to dark brown.
20.0	25.0	Silt, some fine to very coarse sand, some gravel, medium to dark brown.
25.0	35.0	Gravel, silty, some fine to coarse sand, medium to dark brown.
35.0	65.0	Hornblende biotite latite porphyry, phaneritic, prominant phenocrysts of brown hornblende and biotite in a fine grained plagioclase groundmass, trace of quartz, medium pinkish brown.
65.0	75.0	Grades light pinkish brown.
75.0	115.0	Grades to dark yellow brown.
115.0	155.0	Grades medium gray brown.
155.0	199.0	Agglomerate, predominantly includes latite porphyry with hornblende needles, light to medium gray, with a lesser amount of andesite, aphanitic, medium to dark gray.

REMARKS: Boring P270 had 8 inch casing advanced to 52 feet during drilling.

WELL CONSTRUCTION DATA:

WELL P270

Location: Township & Range Coordinates; SW 1/4 NW 1/4 SE 1/4 of Sec. 32 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 4/06/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 199.0 ft.
Surface casing: Diameter;10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 179.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with 0.018 inch factory saw cut slots
Depth; from 179.0 to 199.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 169.0 ft. to total depth.
Bentonite Seal: Depth; from 164.0 to 169.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 164.0 ft.

ADDITIONAL DATA:

Static water level: Date; 4/07/87
Depth; 38.31 feet below top of casing

Elevation; . ft.

Chemistry: Date; 4/07/87
pH; 7.73 Sp. cond. 720 micromhos/cm.

SITE P275

GEOLOGIC LOG: P275

Depths (in feet) from	to	
0.0	5.0	Gravel, very silty, some fine to very coarse sand, weak to moderately cemented, dark pinkish brown.
5.0	20.0	Grades clayey, weak to moderately cemented, tan to light pinkish brown.
20.0	25.0	Silt, some gravel, some fine to coarse sand, weak to moderately cemented, tan to light pinkish brown.
25.0	30.0	Silt, some fine to medium sand, trace of gravel, weak to moderately cemented, tan to light pinkish brown.
30.0	35.0	Sand, very silty, fine to coarse grained, some gravel, weak to moderately cemented, tan to light pinkish brown.
35.0	40.0	Silt, some fine to very coarse sand, trace of fine gravel, weak to moderately cemented, tan to light pinkish brown.
40.0	45.0	Sand, very silty, fine to coarse grained, weak to moderately cemented, tan to light pinkish brown.
45.0	50.0	Grades with some clay layers.
50.0	55.0	Silt, trace of gravel, trace of fine sand, weak to moderately cemented, tan to light pinkish brown.
55.0	65.0	Grades with more gravel, trace of fine to very coarse sand. Grades medium yellow brown, non-cemented.
65.0	70.0	Sand, very silty, fine to very coarse, trace of fine gravel, medium yellow brown.
70.0	75.0	Grades with more fine gravel.
75.0	90.0	Grades less silty.
90.0	95.0	Sand, very silty, medium to very coarse, some gravel, medium yellow brown.
95.0	100.0	Gravel, silty, fine to very coarse sand, medium yellow brown.
100.0	105.0	Grades with less silt.
105.0	110.0	Sand, silty, very fine to medium grained, trace of gravel, medium yellow brown.
110.0	115.0	Grades with more gravel.
115.0	120.0	Gravel, silty, medium to very coarse sand, trace of clay, medium yellow brown.
120.0	125.0	Grades very silty with a trace of clay.
125.0	130.0	Grades without clay.
130.0	140.0	Gravel, clayey, some medium to coarse sand, medium yellow brown.
140.0	150.0	Gravel, silty, trace of fine to very coarse sand, medium yellow brown.
150.0	155.0	Silt, fine to very coarse sand, some gravel, medium yellow brown.
155.0	165.0	Gravel, silty, fine to very coarse sand, medium yellow brown.
165.0	170.0	Grades with some cobbles.

REMARKS: Boring P275 had 8 inch casing advanced to total depth during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl.

WELL CONSTRUCTION DATA:

SITE P276

GEOLOGIC LOG: P276

Depths (in feet) from	to	
0.0	5.0	Gravel, boulders and cobbles, very silty, trace of fine sand, dark brown.
5.0	10.0	Grades with more medium to coarse sand.
10.0	15.0	Gravel, silty, fine to very coarse sand, dark yellow brown.
15.0	20.0	Sand, medium to coarse grained, silty, some gravel, medium brown.
20.0	25.0	Sand, clayey, fine to coarse grained, some gravel, dark yellow brown.
25.0	30.0	Grades with less gravel, tan to medium brown.
30.0	35.0	Clay, silty, trace of coarse sand, moderately cemented, tan to medium brown.
35.0	40.0	Silt, clayey, trace of coarse sand, moderately cemented, tan to medium brown.
40.0	45.0	Clay, silty, trace of gravel, moderately cemented, tan to medium brown.
45.0	50.0	Silt, sandy fine to very coarse, some gravel, medium brown.
50.0	55.0	Gravel, very silty, some fine to very coarse sand , medium brown.
55.0	60.0	Clay, silty, trace of fine to very coarse sand, medium brown.
60.0	70.0	Grades with a trace of gravel.
70.0	80.0	Gravel, very silty, some medium to coarse sand, trace of clay, moderately cemented, light brown.
80.0	85.0	Gravel, cobbles, boulders, very silty, some fine to very coarse sand, moderately cemented, light brown.
85.0	90.0	Grades without boulders.
90.0	100.0	Grades with a trace of clay.
100.0	105.0	Sand, very silty, medium to very coarse, some gravel, moderately cemented, light yellow brown.
105.0	110.0	Grades with more gravel.
110.0	115.0	Gravel, silty, some fine to very coarse sand, moderately cemented, light yellow brown.
115.0	130.0	Grades very silty.
130.0	140.0	Grades with some cobbles and boulders.
140.0	155.0	Gravel, very silty, some fine to very coarse sand, some cobbles, moderately cemented, light yellow brown.
155.0	160.0	Silt, sandy fine to very coarse, some gravel, moderately cemented, light yellow brown.
160.0	165.0	Grades with less gravel.
165.0	175.0	Silt, sandy medium to very coarse, some gravel, moderately cemented, light yellow brown.
175.0	210.0	Gravel, very silty, some fine to coarse sand, moderately cemented, light yellow brown.
210.0	215.0	Grades with some clay.
215.0	220.0	Silt, sandy medium to coarse, some gravel, moderately cemented, tan to medium brown.
220.0	225.0	Grades with more gravel.
225.0	230.0	Gravel, very silty, some fine to very coarse sand, trace of clay, moderately cemented, tan to medium brown.
230.0	240.0	Grades without clay.
240.0	250.0	Gravel, silty, some fine to coarse sand, moderately

		cemented, tan to medium brown.
250.0	255.0	Grades with a trace of clay.
255.0	260.0	Silt, sandy medium to coarse, trace of fine gr. l, moderately cemented, tan to medium brown.
260.0	280.0	Gravel, very silty, some fine to coarse sand, weakly cemented, tan to light yellow brown.
280.0	290.0	Grades with more fine to coarse sand.
290.0	295.0	Gravel, some silt, trace of fine to medium sand, weakly cemented, tan to light yellow brown.
295.0	310.0	Sand, silty, medium to coarse grained, trace of fine gravel, weakly cemented, tan to light yellow brown.
310.0	315.0	Grades with more gravel.

REMARKS: Boring P276 had 8 inch casing advanced to 295 feet. Boring was drilled to 315 feet using a 6 inch diameter due to casing driving difficulty encountered at 295 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus.

WELL CONSTRUCTION DATA:

WELL P276

Location: Township & Range Coordinates; NW 1/4 SW 1/4 SW 1/4 of Sec. 2 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 5/19/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 295.0 ft.
Diameter; 7.0 in. Depth; 315.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 295.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 295.0 to 315.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 288.0 ft. to total depth.
Bentonite Seal: Depth; from 283.0 to 288.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 283.0 ft.

ADDITIONAL DATA:

Static water level: Date; 5/19/87
Depth; 285.91 feet below top of casing
Elevation; . ft.
Chemistry: Date; 5/19/87
pH; 7.06 Sp. cond. 1500 micromhos/cm.
Temperature; 16.1 degrees centigrade.

SITE P277

GEOLOGIC LOG: P277

Depths (in feet) from	to	
0.0	5.0	Gravel, silty, some cobbles, dark brown.
5.0	10.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
10.0	15.0	Gravel grades coarser.
15.0	20.0	Sand, silty, medium to very coarse, some gravel, light yellow brown.
20.0	40.0	Grades very silty.
40.0	45.0	Gravel, silty, some fine to very coarse sand, light yellow brown.
45.0	50.0	Grades very silty.
50.0	60.0	Grades less silty.
60.0	65.0	Gravel, silty, some fine to very coarse sand, light yellow brown.
65.0	70.0	Sand, very silty, fine to very coarse, some fine gravel, light yellow brown.
70.0	75.0	Grades with more fine gravel.
75.0	85.0	Sand, very silty, fine to very coarse, some gravel, light yellow brown.
85.0	100.0	Sand, silty fine to medium grained, trace of gravel, light yellow brown.
100.0	105.0	Gravel, trace of silt, trace of fine sand, light yellow brown.
105.0	110.0	Grades with some fine to coarse sand.
110.0	115.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
115.0	125.0	Grades with more fine to very coarse sand.
125.0	140.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
140.0	145.0	Silt, sandy fine to very coarse, some gravel, light yellow brown.
145.0	155.0	Sand, very silty, fine to very coarse grained, some gravel, light yellow brown.
155.0	170.0	Gravel, sandy fine to very coarse, some silt, light yellow brown.
170.0	175.0	Grades with more silt.
175.0	185.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
185.0	195.0	Grades with less silt, weakly cemented.
195.0	200.0	Gravel, silty, some cobbles, trace of medium to coarse sand, weakly cemented, light yellow brown.
200.0	205.0	Gravel, silty, some fine to coarse sand, light yellow brown.
205.0	220.0	Grades very silty.
220.0	225.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
225.0	230.0	Grades with some cobbles and boulders.
230.0	240.0	Grades without boulders.
240.0	245.0	Gravel, very silty, some fine to very coarse sand,
245.0	250.0	Silt, sandy fine to very coarse, some gravel, light yellow brown.
250.0	255.0	Gravel, very silty, sandy fine to very coarse, some cobbles, light yellow brown.
255.0	260.0	Grades with a trace of clay.
260.0	265.0	Silt, sandy fine to very coarse, some gravel, trace of clay, light yellow brown.

265.0	270.0	Gravel, very silty, some fine to very coarse s: , light yellow brown.
270.0	275.0	Sand, very silty, fine to very coarse grained, some gravel, light yellow brown.
275.0	280.0	Grades with more gravel.
280.0	285.0	Gravel, very silty, some coarse sand and cobbles, light yellow brown.
285.0	290.0	Sand, very silty, very fine to very coarse, some gravel, light yellow brown.
290.0	295.0	Gravel, silty, trace of fine sand, light yellow brown.
295.0	300.0	Gravel, silty, very fine, trace of fine sand, light yellow brown.
300.0	305.0	Grades with some cobbles.
305.0	310.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
310.0	315.0	Gravel, some cobbles, trace of fine to very coarse sand, light yellow brown.
315.0	320.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
320.0	330.0	Silt, some boulders and cobbles, some gravel, some medium to coarse sand, light yellow brown.
330.0	340.0	Gravel, silty, some cobbles, trace of fine to coarse sand, light yellow brown.
340.0	345.0	Grades without cobbles.
345.0	350.0	Gravel, silty, some medium to coarse sand, light yellow brown.
350.0	355.0	Silt, some gravel, trace of fine to coarse sand, light yellow brown.
355.0	360.0	Gravel, very fine, silty, trace of medium to coarse sand, medium yellow brown.
360.0	365.0	Grades with more sand.
365.0	370.0	Grades very silty.
370.0	375.0	Silt, sandy fine to very coarse, some gravel, medium yellow brown.
375.0	380.0	Gravel, clean, some coarse sand, medium yellow brown.
380.0	385.0	Grades with a trace of silt.
385.0	390.0	Grades very silty.
390.0	400.0	Silt, some fine to very coarse sand, some fine gravel, medium yellow brown.

REMARKS: Boring P277 had 8 inch casing advanced to 400 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus.

WELL CONSTRUCTION DATA:

WELL P277

Location: Township & Range Coordinates; 1/4 1/4 1/4 of Sec. Twp. 3 S. Rge. 2 W S.L.B.M.

Elevation: Ground; . ft. Top of casing; . ft.

Completion Date: / /87

Drilling Co: Basin & Range Drilling Inc.

Drilling Method: Cable tool

Drilling Fluid: Water

Boring: Diameter; 9.0 in. Depth; 400.0 ft.

Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 380.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 380.5 to 400.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from . ft. to total depth.
Bentonite Seal: Depth; from . to . ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to . ft.

ADDITIONAL DATA:

Static water level: Date; / /87
Depth; . feet below top of casing
Elevation; . ft.
Chemistry: Date; / /87
pH; . Sp. cond. micromhos/cm.
Temperature; . degrees centigrade.

SITE P277

GEOLOGIC LOG: P277 MUD ROTARY TEST HOLE

Depths (in feet) from	to	
0.0	5.0	Gravel, silty with some fine to coarse sand, gravel to 1/2", medium brown.
5.0	10.0	Grades coarser with less silt and sand, gravel to 1", medium brown.
10.0	15.0	Silt, sandy, some gravel, rounded 1/2", medium orange brown.
15.0	20.0	Sand, silty, very fine to very coarse grained, trace of very fine gravel, medium orange brown.
20.0	25.0	Gravel, very coarse, silty, some fine to very coarse sand, trace of clay. Gravel rounded to sub angular, medium orange brown.
25.0	30.0	Grades coarser without clay, medium yellow brown.
30.0	40.0	Cobbles and boulders, medium yellow brown.
40.0	45.0	Gravel, sandy fine to very coarse, some cobbles, rounded to 2", medium yellow brown.
45.0	50.0	Gravel grades finer with cobbles rounded to 3.5", medium yellow brown.
50.0	60.0	Grades very fine to fine without cobbles.
60.0	65.0	Grades siltier with trace of clay.
65.0	70.0	Grades without clay, gravel very fine to fine.
70.0	80.0	Gravel, some fine to very coarse sand, gravel is subangular, 3/4", medium yellow brown.
80.0	85.0	Sand, medium to very coarse, some fine gravel, medium yellow brown.
85.0	90.0	Grades silty.
90.0	105.0	Gravel, very fine, some fine to very coarse sand, some gravel rounded to 3/4", medium yellow brown, weak to moderately cemented.
105.0	110.0	Grades with some clay, moderately cemented.
110.0	115.0	Grades without clay, moderately cemented.
115.0	120.0	Gravel, very fine, some medium to coarse sand, weak to moderately cemented, medium yellow brown.
120.0	130.0	Sand, very coarse, some very fine gravel, weakly cemented, medium yellow brown.
130.0	135.0	Sand, fine to medium grained, well sorted, medium yellow brown.
135.0	145.0	Sand, very coarse, some very fine gravel, medium yellow brown.
145.0	150.0	Grades with some coarse gravel, angular, 1/2", medium yellow brown.
150.0	155.0	Grades without coarse gravel.
155.0	160.0	Sand, fine to very coarse, some very fine gravel, medium yellow brown.
160.0	165.0	Gravel, clayey with some fine to coarse sand, medium yellow brown.
165.0	170.0	Gravel, very coarse, 1/2 to 1", some fine to very coarse sand, medium yellow brown.
170.0	175.0	Grades with more fine to very coarse sand.
175.0	185.0	Sand, silty fine to very coarse, some very fine gravel, medium yellow brown.
185.0	195.0	Grades clayey.
195.0	200.0	Grades with more 1/2 to 3/4" subangular gravel.
200.0	220.0	Gravel, silty, fine, some fine to very coarse sand, subangular to 1/2", medium yellow brown.
220.0	225.0	Gravel grades coarser to 3/4", subangular.

225.0	230.0	Grades finer with less silt, weakly cemented.
230.0	235.0	Gravel, very fine, trace of medium to coarse sa weakly cemented, medium yellow brown.
235.0	240.0	Grades with a trace of clay, weakly cemented.
240.0	245.0	Grades without trace of clay, weakly cemented.
245.0	265.0	Grades with coarser gravel, subangular to 3/4".
265.0	270.0	Grades with more medium to very coarse sand.
270.0	275.0	Gravel, silty, trace of fine to very coarse sand, medium yellow brown.
275.0	280.0	Gravel, very fine, clayey, some medium to very coarse sand, medium yellow brown.
280.0	285.0	Sand, clayey, medium to coarse, some fine to medium gravel, medium yellow brown.
285.0	290.0	Clay, sandy fine to very coarse, some very fine gravel, medium yellow brown.
290.0	300.0	Gravel, very fine to fine, silty, some fine to very coarse sand, medium yellow brown.
300.0	305.0	Gravel, 1/4", well sorted, medium yellow brown.
305.0	310.0	Gravel, silty, very fine, some fine to very coarse
310.0	325.0	Grades with more fine to very coarse sand.
325.0	330.0	Sand, medium to very coarse, very silty, some fine gravel, medium yellow brown.
330.0	340.0	Gravel, very fine to fine, some fine to very coarse sand, few rounded gravel greater than 2", medium yellow brown.
340.0	350.0	Grades siltier.
350.0	355.0	Sand, very coarse, silty, some very fine to fine gravel, medium yellow brown.
355.0	380.0	Gravel, very fine, very silty, some medium to coarse sand, medium yellow brown.
380.0	385.0	Gravel, very fine, some fine to very coarse sand, medium yellow brown.
385.0	390.0	Grades with some clay.
390.0	400.0	Grades silty without clay.
400.0	405.0	Gravel, very silty, very fine, some fine to very coarse sand, medium yellow brown.
405.0	415.0	Grades with more coarse sand.
415.0	420.0	Grades less sand, some gravel, subangular to 1/2".
420.0	425.0	Sand, medium to very coarse, silty, some very fine to fine gravel, medium yellow brown.
425.0	435.0	Gravel, very fine, some sand, some silt, medium yellow brown.
435.0	440.0	Grades siltier.
440.0	450.0	Grades less silt.
450.0	460.0	Grades with some clay.
460.0	465.0	Clay, some sand and gravel, medium yellow brown.
465.0	470.0	Grades less clay.
470.0	475.0	Gravel, very fine, silty, some medium to very coarse sand, medium yellow brown.
475.0	480.0	Gravel, clayey, some medium to very coarse sand, medium yellow brown.
480.0	485.0	Grades silty.
485.0	495.0	Sand, medium to very coarse, clayey, some very fine gravel, medium yellow brown.
495.0	500.0	Grades with more clay and gravel.
500.0	505.0	Gravel, very fine, silty, some fine to very coarse sand, medium yellow brown.
505.0	520.0	Grades slightly coarser.
520.0	530.0	Gravel, very fine, silty, some fine to very coarse sand, medium yellow brown.
530.0	540.0	Grades siltier with some subangular gravel to 3/4".
540.0	545.0	Grades with trace of clay.
545.0	550.0	Clay, silty, some fine gravel, some fine to coa

		sand, medium yellow brown.
550.0	555.0	Gravel, very fine, silty, some fine to very coarse sand, medium yellow brown.
555.0	565.0	Grades with more fine to very coarse sand.
565.0	575.0	Grades less sand, trace of clay.
575.0	585.0	Grades without clay.
585.0	610.0	Gravel, very fine to fine, some medium to coarse sand, medium yellow brown.
610.0	620.0	Gravel, very fine, silty, some fine to very coarse sand, medium yellow brown.
620.0	625.0	Grades with some fine gravel.
625.0	630.0	Gravel, clayey with some cobbles, medium yellow brown.
630.0	635.0	Gravel, very fine to fine, clayey, some fine to coarse sand, medium yellow brown.
635.0	640.0	Grades less clay.
640.0	645.0	Grades without clay.
645.0	650.0	Gravel, very fine to fine, silty, some fine to very coarse sand, medium yellow brown.
650.0	660.0	Grades finer and very silty.
660.0	665.0	Grades with trace of clay.
665.0	675.0	Grades without clay.
675.0	680.0	Gravel, very fine to fine, silty, some fine to very coarse sand, medium yellow brown.
680.0	685.0	Gravel, fine, clayey, some fine to very coarse sand, medium yellow brown.
685.0	700.0	Grades silty.
700.0	715.0	Clay, some fine to very coarse sand, some fine gravel, medium yellow brown.
715.0	720.0	Sand, fine to very coarse, clayey, some very fine gravel, medium yellow brown.
720.0	725.0	Grades without clay.
725.0	730.0	Gravel, very fine to fine, clayey, some fine to very coarse sand, medium yellow brown.
730.0	735.0	Grades with more sand.
735.0	740.0	Gravel, very fine to fine, clayey, some fine to very coarse sand, medium yellow brown.
740.0	745.0	Grades with trace of clay.
745.0	775.0	Grades without clay, weak to moderately cemented.
775.0	790.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown, weak to moderately cemented.
790.0	800.0	Gravel, very fine, some fine to very coarse sand, medium yellow brown.
800.0	805.0	Gravel, very fine, silty, some fine to very coarse sand, trace of clay, medium yellow brown.
805.0	815.0	Grades very silty without clay.
815.0	820.0	Grades with some clay.
820.0	845.0	Sand, medium to very coarse, very silty, some very fine gravel, medium yellow brown.
845.0	865.0	Gravel, very fine, some fine to very coarse sand, medium yellow brown.
865.0	875.0	Grades with more fine to very coarse sand.
875.0	880.0	Gravel, very fine to fine, silty, some fine to very coarse sand, medium yellow brown.
880.0	885.0	Grades with a trace of clay.
885.0	900.0	Grades without clay.
900.0	905.0	Gravel, very fine, clayey, some fine to very coarse sand, trace of bentonite clay, medium yellow brown.
905.0	910.0	Sand, clayey, fine to very coarse, some fine gravel, trace of bentonite clay, moderately cemented, medium yellow brown.
910.0	915.0	Grades with less clay.
915.0	920.0	Gravel, very fine to fine, clayey, some fine to

		very coarse sand, moderately cemented, medium yellow brown.
920.0	930.0	Clay, some very fine gravel, some fine to very coarse sand, moderately cemented, medium gray.
930.0	950.0	Grades silty with some very fine gravel.
950.0	955.0	Sand, clayey, medium to coarse grained, some very fine gravel, very weakly cemented, medium gray.
955.0	965.0	Grades silty with more very fine gravel.
965.0	970.0	Grades clayey.
970.0	980.0	Clay, sandy fine to very coarse, some fine gravel, very weakly cemented, medium gray.
980.0	990.0	Clay, sandy, medium to very coarse, some gravel, very weakly cemented, medium gray.
990.0	1000.0	Grades siltier with more gravel, medium gray brown.
1000.0	1010.0	Clay, some fine to very coarse sand, some fine gravel, very weakly cemented, medium gray.
1010.0	1015.0	Grades without gravel.
1015.0	1025.0	Grades silty with some gravel.
1025.0	1035.0	Clay, trace of gravel, some fine to very coarse sand, weak to moderately cemented, medium to dark gray.
1035.0	1040.0	Grades with more gravel.
1040.0	1045.0	Clay, sandy fine to very coarse, trace of gravel, medium to dark gray, very weakly cemented.
1045.0	1060.0	Sand, clayey, fine to very coarse grained, trace of gravel, medium to dark gray, very weakly cemented.
1060.0	1075.0	Grades siltier.
1075.0	1080.0	Clay, sandy, medium to very coarse, some silt and gravel, medium to dark gray, very weakly cemented.
1080.0	1085.0	Grades with less sand and gravel.
1085.0	1090.0	Silt, clayey, some fine to very coarse sand, trace gravel, medium to dark gray, very weakly cement
1090.0	1100.0	Grades with more clay.
1100.0	1105.0	Clay, sandy, medium to very coarse, trace of gravel, medium to dark gray, very weakly cemented.
1105.0	1115.0	Grades without gravel.
1115.0	1120.0	Gravel, clayey, some medium to very coarse sand, medium to dark gray, very weakly cemented.
1120.0	1125.0	Grades less sand and gravel, more clay.
1125.0	1130.0	Clay, medium to dark gray, very weakly cemented.
1130.0	1145.0	Grades with a trace of medium sand.
1145.0	1165.0	Grades with a trace of gravel.
1165.0	1200.0	Clay, medium to dark gray, very weakly cemented.

SITE : BARNEY'S WASH, TEST WELL NUMBER ONE

GEOLOGIC LOG: TEST NO. 1

Depths (in feet) from	to	
0.0	40.0	Gravels and silts, no samples retained.
40.0	45.0	Gravel and cobbles, some silt, fine to very coarse sand, medium orange brown.
45.0	50.0	Grades with a trace of clay.
50.0	65.0	Grades without silt.
65.0	70.0	Gravel, silty with some cobbles, some fine to very coarse sand, medium orange brown.
70.0	75.0	Grades with more cobbles, light to medium brown.
75.0	80.0	Gravel, clean, trace of coarse sand, light to medium brown.
80.0	95.0	Agglomerate, dark bluish gray, predominantly consisting of andesite porphyry with lesser amounts of latite porphyry, moderately weathered.
95.0	115.0	Agglomerate, clayey, dark gray, predominantly consisting of andesite porphyry, light purplish gray.
115.0	125.0	Grades with some tuffaceous sediments and some inclusions of hornblende andesite porphyry.
125.0	135.0	Agglomerate, medium gray, predominantly consisting of andesite, aphanitic, with phenocrysts of biotite and hornblende in a microcrystalline matrix, medium gray.
135.0	170.0	Grades clayey.
170.0	185.0	Grades without clay.
185.0	205.0	Agglomerate, medium gray, consisting predominantly andesite porphyry and hornblende andesite porphyry, trace of latite.
205.0	210.0	Grades clayey.
210.0	220.0	Andesite porphyry, phenocrysts of plagioclase, hornblende and biotite, light purplish gray.
220.0	245.0	Agglomerate, medium gray, predominantly composed of andesite porphyry, aphanitic and light gray, with lesser amounts of andesite, microcrystalline, dark gray to black.
245.0	300.0	Agglomerate, predominantly andesite porphyry, phenocrysts of plagioclase, hornblende and biotite, light purplish to greenish gray.
300.0	355.0	Agglomerate, medium gray, predominantly composed of andesite porphyry, aphanitic, phenocrysts primarily biotite and hornblende.
355.0	405.0	Andesite porphyry, aphanitic, medium to dark purplish gray. Phenocrysts comprise approximately 20 percent of rock, predominantly plagioclase, biotite and augite with a trace of quartz in a crystalline groundmass, occasional pieces of hydrothermal calcite. Large cuttings suggest formation to be fractured.
405.0	415.0	Andesite porphyry, same as described above, exhibiting secondary pyrite on fracture surfaces.
415.0	505.0	Andesite porphyry, aphanitic, medium to dark purplish gray. Phenocrysts predominantly plagioclase, biotite and augite with trace of quartz and hydrothermal calcite.
505.0	550.0	Andesite porphyry, phaneritic, light to medium gray. Phenocrysts predominantly plagioclase, with

		accessories biotite, augite and magnetite, trace of quartz. Occasional occurance of hydrothermal calcite.
550.0	630.0	Grades lighter gray.
630.0	640.0	Grades light purplish brown with oxidation of magnetite accessories.
640.0	685.0	Andesite porphyry, aphanitic, phenocrysts predominantly of plagioclase; clayey, moderately weathered, light to medium gray.
685.0	735.0	Augite hornblende andesite, porphyritic, phaneritic texture, predominantly euhedral augite and hornblende phenocrysts, with some magnetite, weathers clayey, dark brown.
735.0	760.0	Latite porphyry, clayey, weathered, predominantly includes accessories of biotite and hornblende, light greenish gray. Includes some calcite, and interbedded with some tuffaceous sediments.
760.0	775.0	Grades medium purplish gray to greenish gray, clayey.
775.0	785.0	Grades medium to dark purplish gray, clayey.
785.0	795.0	Grades lighter gray, possibly interbedded with tuff.
795.0	835.0	Quartzite, silty, very fine to fine grained, tan to gray.
835.0	850.0	Grades medium orange brown.
850.0	870.0	Grades medium brown.
870.0	880.0	Grades medium orange brown.
880.0	915.0	Grades light to medium brown.
915.0	935.0	Quartzite, grades clean, tan to medium gray.
935.0	955.0	Grades tan to orange brown.
955.0	985.0	Grades light orange brown.
985.0	1005.0	Quartzite, very fine to fine grained, grading w[illegible] some claystone, medium to orange-red brown.
1005.0	1020.0	Quartzite, very fine to fine grained, tan to orange brown.

REMARKS: Test well no. 1 had 14.5 inch surface casing cemented to 40 feet below grade before drilling. No samples were retained while casing was set. Water was initially encountered at approximately 175 feet below grade. Boring was drilled with air rotary to 605 feet below grade, and completed to total depth with mud rotary using a 12.25 inch tri cone roller bit.

WELL CONSTRUCTION DATA:

TEST WELL NO.1

Location: Township & Range Coordinates; NW 1/4 NW 1/4 NE 1/4 of Sec. 7 Twp. 3 S. Rge. 2 W S.L.B.M.
Kennecott Coordinates: N. 22952.1 E. 14025.6
Elevation: Ground; 5719.03 ft. Top of casing; 5720.65 ft.
Completion Date: 1/18/87
Drilling Co: Lang Exploratory Drilling
Drilling Method: Air/Mud rotary
Drilling Fluid: Water, foam, quik gel mud.
Boring: Diameter; 12.25 in. Depth;1020.0 ft.
Surface casing: Diameter; 14.5 in. Depth; 40.0 feet
Casing: Diameter; 6.0 inch Material; ASTM A-120 low-carbon steel, .025 wall thickness.
Depth; from ground to 300 ft.

Depth; from 620 to 700 ft.
Depth; from 720 to 800 ft.
Depth; from 820 to 860 ft.

Screen: Diameter; 6.0 inch Material; Continuous slot low-carbon steel with 0.040 vee slot openings.
Depth; from 300 to 620 ft.
Depth; from 700 to 720 ft.
Depth; from 800 to 820 ft.
Depth; from 860 to 1000 ft.

Sand Pack: Type; # 8-12 Colorado Silica Sand
Depth; from 255 ft. to 475 ft.
Depth; from 830 ft. to 1000 ft.
Type; # 10-20 Colorado Silica Sand
Depth; from 475 ft. to 830 ft.
Depth; from 1000ft. to 1020 ft.

Sand Plug Seal: Type; #16-40 colorado Silica Sand
Depth; 245 ft. to 255 ft.

Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 245 ft.

ADDITIONAL DATA:

Static water level: Date; 1/20/87
Depth; 124.40 feet below top of casing
Elevation; 5596.25 ft.

Chemistry: Date; 1/18/87
pH; 8.49 Sp. cond. 790 micromhos/cm.
Temperature; 9.2 degrees centigrade.

COMMENTS: Complete chemical analyses not yet available.

SITE : BARNEY'S WASH, TEST WELL NUMBER TWO

GEOLOGIC LOG: TEST NO. 2

Depths (in feet) from	to	
0.0	20.0	Gravels and clays derived from agglomerate.
20.0	90.0	Agglomerate, medium brownish gray, predominantly composed of andesite porphyry, phaneritic with phenocrysts of hornblende and biotite, reddish brown to gray brown; lesser amounts of latite, porphyritic, hornblende and biotite phenocrysts, medium gray.
90.0	135.0	Agglomerate, predominantly andesite, aphanitic, weathering phenocrysts of anhedral plagioclase, crystalline groundmass with yellow staining on surfaces, overall hue of medium to dark gray brown.
135.0	145.0	Grades with more andesite porphyry, dark brownish red.
145.0	165.0	Agglomerate, grades predominantly andesite, aphanitic, trace of latite porphyry, dark brownish red.
165.0	180.0	Grades with more andesite porphyry, brownish red to gray brown.
180.0	205.0	Agglomerate, predominantly andesite porphyry, brownish gray to brownish red, predominantly hornblende and biotite, lesser amount of latite porphyry, minor inclusions of rhyolite porphyry, maroon to purplish red.
205.0	230.0	Agglomerate, light to medium gray brown, predominantly latite porphyry, phaneritic, phenocrysts hornblende and biotite, light to medium gray; lesser amounts of andesite, aphanitic, light to medium gray brown.
230.0	240.0	Grades predominantly to latite porphyry, medium to dark gray brown.
240.0	270.0	Agglomerate, grades more predominantly andesite and andesite porphyry, aphanitic, reddish brown to brownish gray, trace of latite porphyry, light to medium gray.
270.0	295.0	Grades with more latite porphyry, medium to dark gray.
295.0	345.0	Agglomerate, grades predominantly latite porphyry, medium to dark gray brown, trace of andesite porphyry, aphanitic, purplish gray to brownish gray.
345.0	470.0	Andesite, aphanitic, microcrystalline groundmass displaying oxidation and weathering of hornblende and biotite minerals, medium brownish gray.
470.0	530.0	Agglomerate, predominantly andesite, aphanitic, medium reddish brown to brownish gray, trace of latite porphyry, light to medium gray.
530.0	610.0	Latite porphyry, phaneritic, medium to coarse grained, predominant phenocrysts of plagioclase, hornblende and biotite, light to medium gray.
610.0	630.0	Latite tuff, welded, porphyritic, phenocrysts of potassic feldspar in an aphanitic cryptocrystalline groundmass, minor amount of quartz, light purplish gray.
630.0	655.0	Agglomerate, predominantly latite porphyry, phaneritic, lesser amount of andesite, porphyri ,

		medium to dark brownish gray.
655.0	685.0	Latite porphyry, minor secondary alteration of feldspars weathering yellowish to greenish gray.
685.0	725.0	Latite porphyry, phaneritic, phenocrysts of hornblende and biotite, medium gray to purplish gray.
725.0	735.0	Grades clayey.
735.0	745.0	Latite porphyry, phaneritic, phenocrysts of hornblende and biotite, medium gray to purplish gray.
745.0	760.0	Dacite, aphanitic, predominantly composed of plagioclase feldspar, inclusions of biotite, quartz and hornblende, occasional pyrite on fracture surfaces, dark gray.
760.0	805.0	Grades to clay.
805.0	850.0	Dacite, aphanitic, predominantly composed of plagioclase feldspar, inclusions of biotite, quartz and hornblende, occasional pyrite on fracture surfaces, dark gray.
850.0	875.0	Grades to clay.
875.0	945.0	Dacite, aphanitic, predominantly composed of plagioclase feldspar, inclusions of biotite, quartz and hornblende, occasional pyrite on fracture surfaces, dark gray.
945.0	975.0	Grades clayey.
975.0	1005.0	Grades without clay.
1005.0	1020.0	Grades with some clay.
1020.0	1055.0	Dacite, aphanitic, predominantly composed of plagioclase feldspar, inclusions of biotite, quartz and hornblende, occasional pyrite on fracture surfaces, dark gray.
1055.0	1065.0	Grades clayey.
1065.0	1200.0	Dacite, aphanitic, predominantly composed of plagioclase feldspar, inclusions of biotite, quartz and hornblende, occasional pyrite on fracture surfaces, dark gray.

REMARKS: Test well no. 2 had 16.0 inch surface casing cemented within a 20 inch boring to 15 foot depth prior to drilling. Water was initially first detected at the surface at approximately 360 feet while drilling. Boring was drilled with mud rotary to total depth using a 14 5/8 inch tri-cone roller bit.

WELL CONSTRUCTION DATA:

TEST WELL NO.2

Location: Township & Range Coordinates; NE 1/4 NE 1/4 NE 1/4 of Sec. 7 Twp. 3 S. Rge. 2 W S.L.B.M.
Kennecott Coordinates: N. . E. .
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 3/03/87
Drilling Co: Lang Exploratory Drilling
Drilling Method: Mud rotary
Drilling Fluid: Water, quik gel mud.
Boring: Diameter; 14.675 in. Depth;1200.0 ft.
Surface casing: Diameter; 16.0 in. Depth; 15.0 feet
Casing: Diameter; 8.0 inch Material; ASTM A-120 low-carbon steel, .025 wall thickness.
Depth; from ground to 400 ft.
Depth; from 660 to 680 ft.
Depth; from 720 to 740 ft.
Depth; from 760 to 820 ft.

Depth; from 860 to 880 ft.
Depth; from 940 to 980 ft.
Depth; from 1040 to 1080 ft.

Screen: Diameter; 8.0 inch Material; Continuous slot stainless steel with 0.040 vee slot openings.
Depth; from 400 to 660 ft.
Depth; from 680 to 720 ft.
Depth; from 740 to 760 ft.
Depth; from 820 to 860 ft.
Depth; from 880 to 940 ft.
Depth; from 980 to 1040 ft.
Depth; from 1080 to 1200 ft.

Sand Pack: Type; # 6-9 Colorado Silica Sand
Depth; from 400 ft. to 1200 ft.
Type; # 10-20 Colorado Silica Sand
Depth; from 269 ft. to 400 ft.

Sand Plug Seal: Type; #16-40 colorado Silica Sand
Depth; 258 ft. to 269 ft.

Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 258 ft.

ADDITIONAL DATA:

Static water level: Date; 3/02/87
Depth; 295.5 feet below ground level
Elevation; . ft.

Chemistry: Date; 3/04/87
pH; 7.29 Sp. cond. 800 micromhos/cm.
Temperature; . degrees centigrade.

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SITE P277

GEOLOGIC LOG: P277

Depths (in feet) from	to	
0.0	5.0	Gravel, silty, some cobbles, dark brown.
5.0	10.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
10.0	15.0	Gravel grades coarser.
15.0	20.0	Sand, silty, medium to very coarse, some gravel, light yellow brown.
20.0	40.0	Grades very silty.
40.0	45.0	Gravel, silty, some fine to very coarse sand, light yellow brown.
45.0	50.0	Grades very silty.
50.0	60.0	Grades less silty.
60.0	65.0	Gravel, silty, some fine to very coarse sand, light yellow brown.
65.0	70.0	Sand, very silty, fine to very coarse, some fine gravel, light yellow brown.
70.0	75.0	Grades with more fine gravel.
75.0	85.0	Sand, very silty, fine to very coarse, some gravel, light yellow brown.
85.0	100.0	Sand, silty fine to medium grained, trace of gravel, light yellow brown.
100.0	105.0	Gravel, trace of silt, trace of fine sand, light yellow brown.
105.0	110.0	Grades with some fine to coarse sand.
110.0	115.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
115.0	125.0	Grades with more fine to very coarse sand.
125.0	140.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
140.0	145.0	Silt, sandy fine to very coarse, some gravel, light yellow brown.
145.0	155.0	Sand, very silty, fine to very coarse grained, some gravel, light yellow brown.
155.0	170.0	Gravel, sandy fine to very coarse, some silt, light yellow brown.
170.0	175.0	Grades with more silt.
175.0	185.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
185.0	195.0	Grades with less silt, weakly cemented.
195.0	200.0	Gravel, silty, some cobbles, trace of medium to coarse sand, weakly cemented, light yellow brown.
200.0	205.0	Gravel, silty, some fine to coarse sand, light yellow brown.
205.0	220.0	Grades very silty.
220.0	225.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
225.0	230.0	Grades with some cobbles and boulders.
230.0	240.0	Grades without boulders.
240.0	245.0	Gravel, very silty, some fine to very coarse sand,
245.0	250.0	Silt, sandy fine to very coarse, some gravel, light yellow brown.
250.0	255.0	Gravel, very silty, sandy fine to very coarse, some cobbles, light yellow brown.

255.0	260.0	Grades with a trace of clay.
260.0	265.0	Silt, sandy fine to very coarse, some gravel, trace of clay, light yellow brown.
265.0	270.0	Gravel, very silty, some fine to very coarse sand, light yellow brown.
270.0	275.0	Sand, very silty, fine to very coarse grained, some gravel, light yellow brown.
275.0	280.0	Grades with more gravel.
280.0	285.0	Gravel, very silty, some coarse sand and cobbles, light yellow brown.
285.0	290.0	Sand, very silty, very fine to very coarse, some gravel, light yellow brown.
290.0	295.0	Gravel, silty, trace of fine sand, light yellow brown.
295.0	300.0	Gravel, silty, very fine, trace of fine sand, light yellow brown.
300.0	305.0	Grades with some cobbles.
305.0	310.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
310.0	315.0	Gravel, some cobbles, trace of fine to very coarse sand, light yellow brown.
315.0	320.0	Gravel, very fine, silty, some fine to coarse sand, light yellow brown.
320.0	330.0	Silt, some boulders and cobbles, some gravel, some medium to coarse sand, light yellow brown.
330.0	340.0	Gravel, silty, some cobbles, trace of fine to coarse sand, light yellow brown.
340.0	345.0	Grades without cobbles.
345.0	350.0	Gravel, silty, some medium to coarse sand, light yellow brown.
350.0	355.0	Silt, some gravel, trace of fine to coarse sand, light yellow brown.
355.0	360.0	Gravel, very fine, silty, trace of medium to coarse sand, medium yellow brown.
360.0	365.0	Grades with more sand.
365.0	370.0	Grades very silty.
370.0	375.0	Silt, sandy fine to very coarse, some gravel, medium yellow brown.
375.0	380.0	Gravel, clean, some coarse sand, medium yellow brown.
380.0	385.0	Grades with a trace of silt.
385.0	390.0	Grades very silty.
390.0	400.0	Silt, some fine to very coarse sand, some fine gravel, medium yellow brown.

REMARKS: Boring P277 had 8 inch casing advanced to 400 feet during drilling. Degree of cementation identified by reactivity of sediments with 10% HCl. Gravel compositions were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 percent volcanic detritus.

WELL CONSTRUCTION DATA:

WELL P277

Location: Township & Range Coordinates; SE 1/4 SE 1/4 NE 1/4 of Sec. 15 Twp. 3 S. Rge. 2 W S.L.B.M.

SITE P278

GEOLOGIC LOG: P278B

Depths (in feet) from	to	
0.0	5.0	Clay, silty, trace of very fine gravel, medium brown.
5.0	10.0	Silt, some gravel, trace of coarse sand, medium brown.
10.0	15.0	Gravel, clayey, some fine to very coarse sand, tan to medium brown.
15.0	25.0	Grades silty.
25.0	30.0	Gravel, very silty, trace of coarse sand, moderately cemented, tan to medium brown.
30.0	35.0	Grades with some fine to very coarse sand.
35.0	40.0	Gravel, very silty, some clay, some fine to very coarse sand, moderately cemented, medium brown.
40.0	45.0	Grades without clay.
45.0	50.0	Gravel, very silty, trace of fine to coarse sand, moderately cemented, tan to medium brown.
50.0	55.0	Grades with some clay, weakly cemented.
55.0	70.0	Clay, silty, some gravel, weakly cemented, tan to medium brown.
70.0	85.0	Gravel, very silty, some fine to very coarse sand, trace of clay, moderately cemented, tan to medium brown.
85.0	90.0	Sand, very silty, fine to very coarse, trace of gravel, moderately cemented, tan to medium brown.
90.0	95.0	Grades with more gravel.
95.0	105.0	Gravel, cobbles, boulders, moderately cemented, tan to medium brown.
100.5	110.0	Sand, very silty, fine to very coarse grained, trace of gravel, moderately cemented, tan to medium brown.
110.0	120.0	Grades with some cobbles.
120.0	125.0	Sand, very silty, medium to coarse, trace of gravel weakly cemented, medium to dark brown.
125.0	130.0	Gravel, clayey, trace of coarse sand, weakly cemented, medium to dark brown. Gravels grade predominantly from sedimentary to volcanic detrital materials.
130.0	135.0	Silt, trace of coarse sand, weakly cemented, medium to dark brown.
135.0	150.0	Grades with a trace of gravel.
150.0	160.0	Grades with more gravel.
160.0	170.0	Gravel, very silty, some fine to coarse sand, medium to dark brown.
170.0	175.0	Clay, silty, some fine to very coarse sand, trace of gravel, medium to dark brown.
175.0	200.0	Silt, some fine to very coarse sand, moderately cemented, medium to dark brown.
200.0	205.0	Clay, trace of medium to coarse sand, moderately cemented, medium to dark brown.
205.0	215.0	Silt, clayey, some fine to very coarse sand, moderately cemented, medium to dark brown.
215.0	220.0	Silt, trace of fine to very coarse sand,

Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: 5/27/87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 400.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 380.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 380.5 to 400.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 373.0 ft. to total depth.
Bentonite Seal: Depth; from 368.0 to 373.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 368.0 ft.

ADDITIONAL DATA:

Static water level: Date; 5/29/87
Depth; 270.55 feet below top of casing
Elevation; . ft.
Chemistry: Date; 5/29/87
pH; 7.21 Sp. cond. 2100 micromhos/cm.
Temperature; 16.4 degrees centigrade.

		moderately cemented, medium to dark brown.
220.0	225.0	Grades with some clay.
225.0	230.0	Silt, some fine to very coarse sand, moderately cemented, medium to dark brown.
230.0	235.0	Sand, very silty, fine to coarse grained, trace of gravel, moderately cemented, medium to dark brown.
235.0	245.0	Gravel, very silty, some fine to very coarse sand, weakly cemented, medium to dark brown.
245.0	250.0	Gravel, very silty, some fine to very coarse sand, weakly cemented, medium to dark brown.
250.0	255.0	Grades with some cobbles and boulders.
255.0	260.0	Gravel, cobbles and boulders, some fine to very coarse sand, weakly cemented, medium to dark brown.
260.0	265.0	Gravel, some cobbles, trace of fine to coarse sand, weakly cemented, medium to dark brown.
265.0	275.0	Gravel, very silty, trace of coarse sand, weakly cemented, medium to dark brown.
275.0	280.0	Silt, some gravel, trace of fine to coarse sand, weakly cemented, medium to dark brown.

REMARKS: Boring P278B had 8 inch casing advanced to 255.0 feet during drilling. Gravel compositions which were typically 60 to 70 percent white to light gray to orange-brown quartzite and 30 percent volcanic detritus changed at 125 feet to become chiefly volcanic gravels consisting of andesite porphyry, andesite, and latite, medium to dark gray.

WELL CONSTRUCTION DATA:

WELL P278B

Location: Kennecott Coordinate; N. . E. .
Township & Range Coordinates; SW 1/4 SW1/4 NE 1/4 of Sec. 5 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: / /87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 280.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 260.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 260.0 to 280.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 253.0 to total depth.
Bentonite seal: Depth; from 248.0 to 253.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; 0 to 248.0 ft.

ADDITIONAL DATA:

Static water level: Date; / /87
Depth; . feet below top of casing
Elevation; . ft.

Chemistry: Date; / /87
ph; . Sp. cond. micromhs/cm.

WELL CONSTRUCTION DATA:

WELL P278A
Location: Kennecott Coordinate; N. . E. .
Township & Range Coordinates; SW 1/4 SW 1/4 NE 1/4
of Sec. 5 Twp. 3 S. Rge. 2 W. S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: / /87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 57.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 40 PVC
Depth; from ground to 17.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 40 PVC with
0.018 inch factory saw cut slots
Depth; from 17.0 to 57.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 12.0 ft. to total depth.
Bentonite Seal: Depth; from 7.0 to 12.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 7.0 ft.

ADDITIONAL DATA:

Static water level: Date;07/22/87
Depth; DRY
Elevation; . ft.

SITE P273

GEOLOGIC LOG: P273

Depths (in feet) from	to	
0.0	5.0	Gravel, cobbles, fine to coarse sand, trace of silt, tan to medium brown.
5.0	15.0	Grades with more silt.
15.0	30.0	Gravel, very fine, very silty, some fine to coarse sand, medium yellow brown.
30.0	40.0	Sand, very silty, fine to very coarse, some gravel, medium yellow brown.
40.0	50.0	Silt, sandy fine to coarse, trace of gravel, medium yellow brown.
50.0	55.0	Sand, very silty, fine to coarse grained, medium yellow brown.
55.0	60.0	Grades with more gravel.
60.0	65.0	Sand, very silty, some fine gravel, medium yellow brown.
65.0	70.0	Sand, very silty, very fine to coarse grained, some gravel, medium yellow brown.
70.0	75.0	Silt, sandy very fine to coarse, trace of gravel, medium yellow brown.
75.0	85.0	Sand, Very silty, fine to coarse grained, some gravel, medium yellow brown.
85.0	90.0	Grades with more gravel.
90.0	95.0	Gravel, silty, some very fine to coarse sand, medium yellow brown.
95.0	115.0	Grades very silty.
115.0	120.0	Silt, sandy fine to coarse, some gravel, medium yellow brown.
120.0	125.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
125.0	130.0	Grades with more fine to very coarse sand.
130.0	135.0	Gravel, very silty, some fine to coarse sand, trace of clay, medium yellow brown.
135.0	140.0	Grades with more clay.
140.0	145.0	Gravel, silty with some cobbles, some fine to coarse sand, medium yellow brown.
145.0	160.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
160.0	165.0	Sand, very coarse, clean, trace of very fine gravel, medium yellow brown.
165.0	170.0	Gravel, very silty, some medium to coarse sand, medium yellow brown.
170.0	175.0	Gravel, some cobbles, clayey, some fine to very coarse sand, medium yellow brown.
175.0	180.0	Grades without cobbles.
180.0	185.0	Sand, fine to very coarse grained, some fine gravel, medium yellow brown.
185.0	195.0	Gravel, very fine, some medium to coarse sand, trace of silt, medium yellow brown.
195.0	200.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
200.0	215.0	Grades with less silt.
215.0	220.0	Sand, very silty, medium to coarse grained, some gravel, tan to light brown.

220.0	225.0	Gravel, very silty, some medium to coarse sand, tan to light brown.
225.0	230.0	Grades with some cobbles.
230.0	235.0	Gravel, silty, trace of fine sand, tan to light brown.
235.0	240.0	Gravel, very silty to clayey, some fine to very coarse sand, tan to light brown.
240.0	250.0	Gravel, very silty, trace of coarse sand, tan to light brown.
250.0	255.0	Silt, some fine gravel, trace of coarse sand, tan to light brown.
255.0	265.0	Gravel, very silty, some fine to very coarse sand, tan to light brown.
265.0	270.0	Silt, some fine to very coarse sand, trace of gravel, tan to light brown.
270.0	275.0	Gravel, cobbles, trace of coarse sand, tan to light brown.
275.0	280.0	Gravel, very silty, some fine to very coarse sand, tan to light brown.
280.0	285.0	Grades with less silt and sand.
285.0	290.0	Gravel, clean, trace of coarse sand, tan to light brown. Gravels at this point grade to approximately 70% detrital volcanic materials.
290.0	295.0	Grades with more fine to coarse sand.
295.0	300.0	Gravel, very silty, some fine to coarse sand, tan to light brown.
300.0	305.0	Sand, very silty, medium to very coarse grained, some fine gravel, tan to light brown.
305.0	310.0	Grades with more fine gravel.
310.0	320.0	Gravel, very silty, some fine to coarse sand, medium brown. Sediments grade to approximately 90% detrital volcanic materials.
320.0	325.0	Sand, silty, medium to very coarse, some gravel, medium brown.
325.0	330.0	Grades very silty.
330.0	335.0	Gravel, silty, some fine to very coarse sand, medium brown.
335.0	340.0	Sand, fine to very coarse, silty, trace of fine gravel, medium brown.

REMARKS: Boring P273 had 8 inch casing advanced to total depth during drilling. Gravel compositions which were typically 80 to 90 percent white to light gray to orange-brown quartzite graded to 70% volcanic detrital material at 285 feet and to 90% volcanic material at 310 foot depth. Water was first encountered at 262 feet during drilling.

WELL CONSTRUCTION DATA:

WELL P273

Location: Township & Range Coordinates; SE1/4 NE1/4 SE1/4 of Sec. 21 Twp. 3 S. Rge. 2 W S.L.B.M.

Elevation: Ground; . ft. Top of casing; . ft.

Completion Date: 07/17/87

Drilling Co: Basin & Range Drilling Inc.

Drilling Method: Cable tool

Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 340.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 320.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with
0.018 inch factory saw cut slots
Depth; from 320.0 to 340.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 313.0 ft. to total depth.
Bentonite Seal: Depth; from 308.0 to 313.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 308.0 ft.

ADDITIONAL DATA:

Static water level: Date; 07/22/87
Depth; 260.60 feet below top of casing
Elevation; . ft.
Chemistry: Date; / /87
pH; . Sp. cond. micromhos/cm.
Temperature; . degrees centigrade.

SITE P264

GEOLOGIC LOG: P264

Depths (in feet) from	to	
0.0	5.0	Silt, some fine to coarse sand, some gravel, dark brown.
5.0	10.0	Silt, clayey, trace of very fine gravel, medium brown. yellow brown.
10.0	20.0	Clay, silty, trace of very fine gravel, medium brown.
20.0	30.0	Silt, trace of fine to coarse sand, some gravel, medium brown.
30.0	35.0	Silt, clayey, some gravel, trace of fine to coarse sand, medium brown.
35.0	40.0	Silt, trace of very fine sand, trace of clay, medium brown.
40.0	45.0	Gravel, very silty, trace of fine to very coarse sand, medium brown.
45.0	50.0	Grades with a trace of clay.
50.0	65.0	Silt, clayey, some fine to very coarse gravel, medium brown.
65.0	75.0	Clay, silty, some gravel, some fine to very coarse sand, medium brown.
75.0	80.0	Gravel, very silty, some fine to very coarse sand, medium brown.
80.0	100.0	Grades with more fine to medium sand.
100.0	105.0	Gravel, fine, silty, trace of fine to coarse sand, medium brown.
105.0	115.0	Grades with more fine to coarse sand.
115.0	120.0	Gravel, silty, trace of fine to coarse sand,
120.0	130.0	Gravel, cobbles, trace of silt, trace of fine to coarse sand, tan to light brown.
130.0	135.0	Grades very silty, medium yellow brown.
135.0	140.0	Silt, trace of coarse sand.
140.0	145.0	Gravel, cobbles, silty, fine to very coarse sand, medium yellow brown.
145.0	150.0	Gravel, trace of silt.
150.0	155.0	Grades silty with a trace of coarse sand.
155.0	160.0	Gravel, silty, trace of fine to very coarse sand,
160.0	165.0	Gravel, very silty, trace of coarse sand, medium yellow brown.
165.0	170.0	Grades with less sand.
170.0	175.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
175.0	180.0	Gravel, cobbles, some silt, some fine to very coarse sand, medium yellow brown.
180.0	185.0	Grades with a trace of clay.
185.0	190.0	Gravel, very silty, some fine to very coarse sand, trace of clay, medium yellow brown.
190.0	195.0	Sand, very silty, some gravel, medium yellow brown.
195.0	200.0	Grades with more gravel.
200.0	205.0	Gravel, fine, trace of coarse sand, medium yellow brown.
205.0	210.0	Grades with some silt, more fine to coarse sand, medium yellow brown.

210.0	215.0	Gravel, fine, trace of coarse sand, trace of silt, medium yellow brown.
215.0	220.0	Gravel, silty, some fine to coarse sand, medium yellow brown.
220.0	235.0	Grades with some cobbles and boulders.
235.0	240.0	Gravel, very silty, some fine to very coarse sand, medium yellow brown.
240.0	245.0	Grades with some cobbles.
245.0	250.0	Gravel, trace of coarse sand, medium yellow brown.
250.0	255.0	Grades with some cobbles and boulders.
255.0	260.0	Sand, fine to coarse grained, trace of silt, trace of gravel, medium yellow brown.
260.0	275.0	Gravel, silty, some fine to very coarse sand, medium yellow brown.
275.0	290.0	Grades with some cobbles.
290.0	295.0	Gravel, silty, trace of fine to coarse sand, medium yellow brown.
295.0	300.0	Grades with some cobbles.
300.0	310.0	Gravel, clean, trace of coarse sand, medium yellow brown.
310.0	315.0	Gravel, silty, some fine to coarse sand, medium brown.
315.0	320.0	Silt, some very coarse sand, trace of gravel, medium yellow brown.
320.0	325.0	Gravel, very silty, trace of fine to coarse sand, medium orange brown.
325.0	330.0	Grades with a trace of clay.
330.0	335.0	Gravel, clayey and silty, some medium to very coarse sand, medium orange brown.
335.0	340.0	Gravel, fine, clean, some fine to very coarse sand, medium orange brown.
340.0	345.0	Grades with some silt.
345.0	350.0	Gravel, clean, trace of fine to coarse sand, tan to light yellow brown.
350.0	355.0	Gravel, fine, very silty, trace of fine to coarse sand, tan to light yellow brown.
355.0	360.0	Grades clean.
360.0	365.0	Grades very silty with a trace of fine to coarse sand.
365.0	370.0	Sand, very coarse, some very fine gravel, trace of silt, tan to light yellow brown.
370.0	375.0	Grades finer with some silt.
375.0	380.0	Sand, very coarse, some very fine gravel, trace of silt, tan to light yellow brown.
380.0	385.0	Silt, some medium to very coarse sand, trace of very fine gravel, tan to light yellow brown.
385.0	395.0	Gravel, very silty, some fine to coarse sand, trace of clay, tan to light yellow brown.
395.0	405.0	Gravel, very silty, some fine to coarse sand, tan to light yellow brown.
405.0	410.0	Grades with more fine to very coarse sand.
410.0	425.0	Silt, some very fine gravel, trace of fine to very trace of clay, tan to light yellow brown.
425.0	430.0	Gravel, silty, some clay, some fine to very coarse sand, tan to light yellow brown.
430.0	435.0	Grades very silty.
435.0	445.0	Gravel, very silty, trace of fine to very coarse sand, tan to light yellow brown.
445.0	455.0	Gravel, very silty and clayey, some medium to very coarse sand, tan to light yellow brown.

455.0	460.0	Grades without clay.
460.0	470.0	Sand, medium to very coarse, silty, some gravel, tan to light yellow brown.
470.0	475.0	Gravel, very silty, some fine to very coarse sand, tan to light yellow brown.
475.0	480.0	Sand, very silty, fine to coarse grained, trace of very fine gravel, tan to light yellow brown.
480.0	485.0	Grades with more gravel.
485.0	495.0	Gravel, sandy fine to very coarse, trace of silt, tan to light yellow brown.
495.0	500.0	Sand, very coarse, clean, trace of gravel, tan to light yellow brown.
500.0	505.0	Gravel, very fine, silty, some coarse to very coarse sand, tan to light yellow brown.

REMARKS: Boring P264 had 8 inch casing advanced to total depth. Gravel compositions were typically 80 to 90 percent white to light gray to orange-brown quartzite and 10 to 20 percent volcanic detritus. Samples between depths of 320 and 375 feet had a predominant orange staining and heavy acidic odor. Water was first encountered during drilling at 286 feet below grade.

WELL CONSTRUCTION DATA:

WELL P264

Location: Township & Range Coordinates; SE1/4 SE 1/4 SE 1/4 of Sec.16 Twp. 3 S. Rge. 2 W S.L.B.M.
Elevation: Ground; . ft. Top of casing; . ft.
Completion Date: / /87
Drilling Co: Basin & Range Drilling Inc.
Drilling Method: Cable tool
Drilling Fluid: Water
Boring: Diameter; 9.0 in. Depth; 505.0 ft.
Surface casing: Diameter; 10.0 in. Depth; 2.0 feet
Casing: Diameter; 4.0 inch Material; Schedule 80 PVC
Depth; from ground to 485.0 ft.
Screen: Diameter; 4.0 inch Material; Schedule 80 PVC with 0.018 inch factory saw cut slots
Depth; from 485.0 to 505.0 ft.
Sand Pack: Type; #16-40 Colorado Silica Sand
Depth; from 478.0 ft. to total depth.
Bentonite Seal: Depth; from 473.0 to 478.0 ft.
Grout Seal: Type; Neat Cement with 4% Bentonite
Depth; from 0 to 473.0 ft.

ADDITIONAL DATA:

Static water level: Date; / /87
Depth; . feet below top of casing
Elevation; . ft.
Chemistry: Date; / /87
pH; . Sp. cond. micromhos/cm.
Temperature; . degrees centigrade.